

GENERAL INSTRUMENT



DISCRETE SEMICONDUCTORS
DATA BOOK

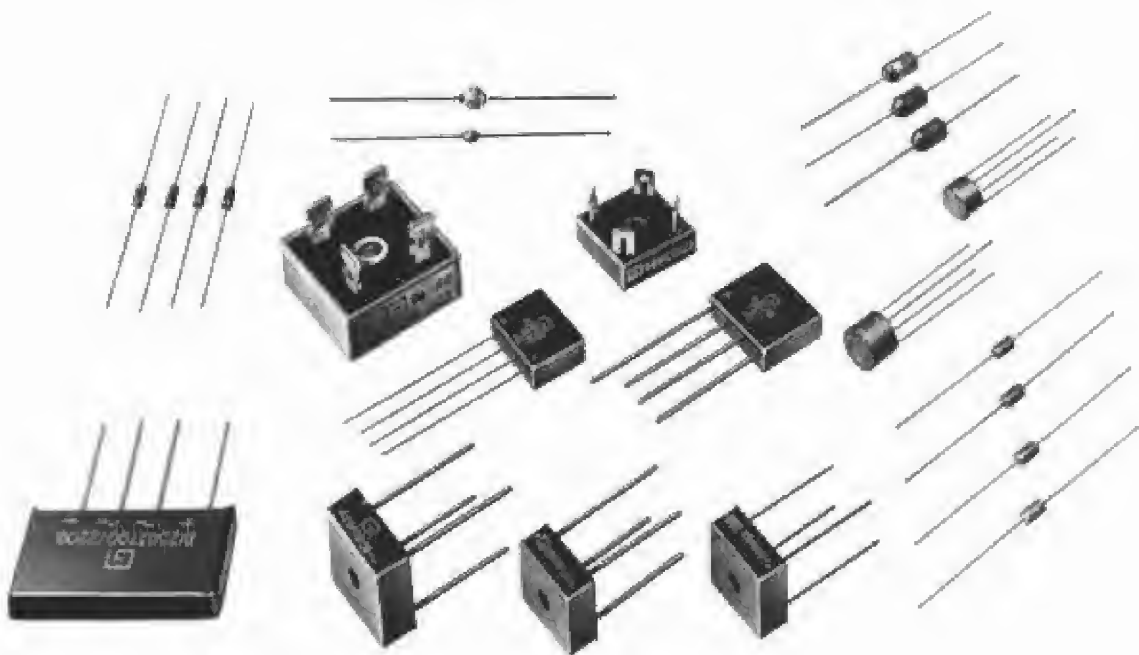
Introduction

General Instrument Corporation is a major international company manufacturing a wide range of products from data system, cable TV, component product to semiconductors. The Corporation, which has been in existence over 50 years, has factories throughout the world serving all markets.

The discrete semiconductor division has factories in United States and Far East, and is one of the leading manufacturers of rectifiers and bridges. This catalog details our range of low and medium power rectifier products and bridge assemblies, including SUPERECTIFIERS, plastic encapsulated rectifiers, glass passivated rectifiers, bridges and special assemblies. The information, contained in this booklet, is intended to provide the necessary technical and support data to assist the designer.

Particular emphasis has been focused on the SUPERECTIFIER product family, a new concept in rectifier technology, launched some three years ago. Featuring a metallurgically bonded junction, glass passivation and flame retardant epoxy encapsulation to provide the ultimate in rectifier quality and reliability.

It is our policy to maintain high standards of product manufacture and the GI logo printed on every component ensures that it reaches the high level of quality and reliability. In the complex and competitive semiconductor industry, high standards of quality are of the utmost importance since they constitute, for the customer, the assurance of reliable product performance.



Not every application problem can be solved using a standard device, in this case we often develop special products to meet the customer requirements. If in doubt, call your local Sales Office or our Application Engineering Laboratory (listed on page 111) for further information.



SYMBOLS

SYMBOLS

I_F	Forward Current
$I_{F(AV)}$	Average Forward Rectified Current
I_{FSM}	Peak Forward Surge Current
I_O	Mean Forward Current
I_R	Reverse Current
I_{rr}	Reverse Recovery Current
I^2t	I^2t Rating for Fusing
$R_{TH(J-A)}$	Thermal Resistance (Junction to Ambient)
$R_{TH(J-C)}$	Thermal Resistance (Junction to Case)
T_A	Ambient Temperature
T_C	Case Temperature
T_L	Lead Temperature
t_{rr}	Reverse Recovery Time
V_{BR}	Breakdown Voltage
V_F	Forward Voltage
V_{FR}	Forward Recovery Voltage
V_R	Reverse Voltage
V_{RMS}	RMS Input Voltage
V_{RRM}	Repetitive Peak Reverse Voltage
V_Z	Zener Voltage
Z_K	Dynamic Impedance

DRAWINGS

All dimensions in mm.
Figures not to scale.

TEMPERATURES

Ratings at 25°C ambient temperature unless otherwise specified.

Forward derating curves are measured while leads are held to ambient temperature in a distance of 10 mm to the case except all KBPC-Bridges, where case temperature is measured.

This General Instrument data book — containing short form data sheets — is not a document for official acceptance tests. Relevant is only the detailed data sheet, which is available on request.
The Manufacturer reserves the right to change the contained data at any time in order to improve performance and supply the best product possible.



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1N4003GP	57	1N5402	16	B40C1000	84	BY254P	17
1N4004	15	1N5403	16	B40C1500	85	BY255P	17
1N4004GP	57	1N5404	16	B40C1500C	86	BY296P	22
1N4005	15	1N5405	16	B40C3700/2200	94	BY297P	22
1N4005GP	57	1N5406	16	B40C5000/3300	95	BY298P	22
1N4006	15	1N5407	16	B80C500	82	BY299P	22
1N4006GP	57	1N5408	16	B80C800	83	BY500-100	23
1N4007	15	1N5614	42	B80C1000	84	BY500-200	23
1N4007GP	57	1N5615	43	B80C1500	85	BY500-400	23
1N4245	35	1N5616	42	B80C1500C	86	BY500-600	23
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GP15A	63	KBP02	90	KBPC35 06	103	RGP30D	75
GP15B	63	KBP04	90	KBPC35 08	103	RGP30G	75
GP15D	63	KBP06	90	KBPC35 10	103	RGP30J	75
GP15G	63	KBP08	90	P300A	18	RGP30K	75
GP15J	63	KBP10	90	P300B	18	RGP30M	75
GP15K	63	KBPC005	96	P300D	18	W005	88
GP15M	63	KBPC02	96	P300G	18	W02	88
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GP20B	66	KBPC06	96	P300K	18	W06	88
GP20D	66	KBPC08	96	P300M	18	W08	88
GP20G	66	KBPC10	96	P600A	19	W10	88
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HVG5	48	KBPC6 02t	99	RG3B	45		
HVPR10-06	26	KBPC6 04t	99	RG3D	45		
HVPR10-08	26	KBPC6 06t	99	RG3G	45		
HVPR10-10	26	KBPC6 08t	99	RG3J	45		



APPLICATIONS SURVEY

		PLASTIC RECTIFIERS												GLASS RECTIFIERS											
TYPE		1N4001 1N4002	1N4007	1N5400 1N5408	P3004 P3004M	BY251P BY251P	BY255P	BY206P BY206P	BY209P BY209P	BY220-100 BY220-600	PR20A PR20M	AP25A AP25M	HYPR20 HYPR20	HYPR10 HYPR10	HYPR15-4 HYPR15-4	1N4045 1N4045	1N4049	1N5411 1N5411	1N5414 1N5414	1N4942 1N4942	1N4948 1N4948	1N5055 1N5055	1N5062 1N5062	1N5024 1N5024	1N5027 1N5027
APPLICATION																									
Audio Power Amplifier																									
Automotive																									
Computer Systems																									
Controlled Avalanche																									
Domestic Appliances																									
Fast Switching																									
General Purpose																									
High Current																									
High Mechanical Strength																									
High Surge																									
High Voltage																									
Low Leakage																									
Low RFI																									
Medical Equipment																									
Micro Wave Ovens																									
Military Applications																									
Industrial Systems																									
Photo Flash																									
Power Supplies																									
Switch Mode Power Supply																									
Telecommunication																									
Television Scanning																									
TV Clamping, Damping																									



Plastic Rectifier

1 to 25 Amperes

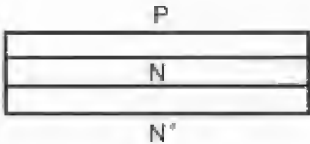
50 V
to
15000 V

Principle of Construction

General Instrument has produced successfully for many years Plastic Rectifiers. The key factor of our 1 Amp Plastic Rectifier is the use of the cell concept. The small size and absence of leads allows many cells to be processed simultaneously in batch form. This method ensures accurate pretesting of the cells before final assembly, and allows General Instrument to produce high volume of 1 Amp Rectifiers economically.

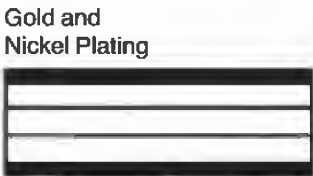
The cell construction consists of the following steps:

1 – Diffusing a PN junction into a slice of silicon.



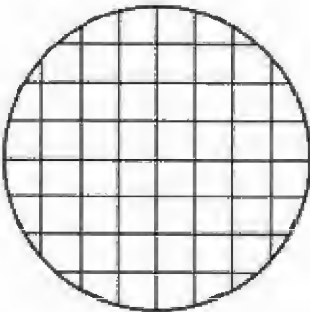
Diffused Slice

2 – Metallizing the slice of silicon.



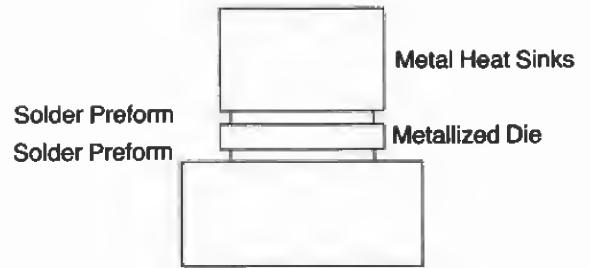
Metallized Slice

3 – Scribing and breaking the slice into individual dies.



Scribed Wafer

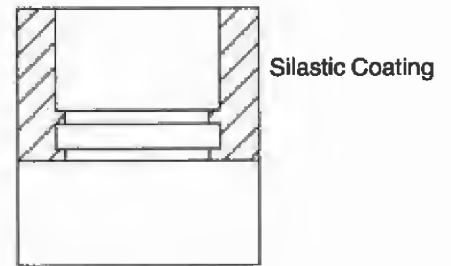
4 – Soldering the die between two heat sinks.



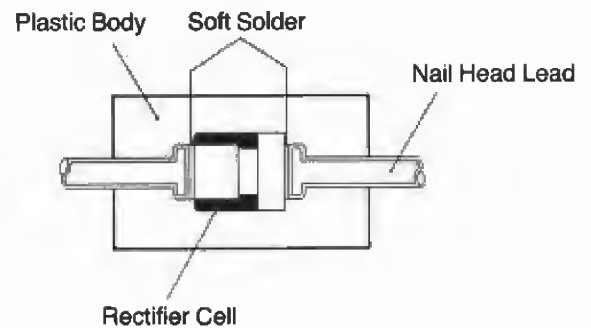
Soldering die between Heat Sinks

5 – Cleaning the assembly by chemical etching, washing and drying.

6 – Passivating the finished cell with silastic.



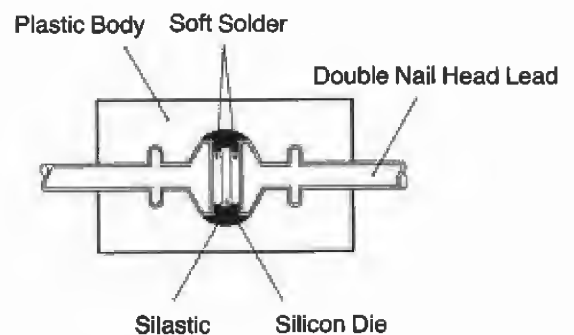
Silastic Coated Cell



Cell Constructed Plastic Rectifier

7 – In addition to the cell-construction for high current rectifiers the double nail head construction is used. In this construction the cell is soldered, between two nail headed leads and over-molding with an epoxy body.

8 – The double nail head construction is used for high current plastic rectifiers.



Double Nail Head Plastic Rectifier



Miniature Plastic Silicon Rectifiers 1 AMP

Type: 1N4001 thru 1N4007

Features:

- Low Cost
- Diffused Junction
- Low Leakage
- High Current Capability
- Easily Cleaned with Freon, Alcohol, Chlorothene and similar Solvents
- Silver Plated Axial Leads, Solderable per MIL-STD-202/208
- Case: Jedec DO 41

Plastic Power Rectifiers 1.2 to 5 AMP

Types: 1N5400 thru 1N5408
P300A thru P300M
BY251P thru BY255P
BY296P thru BY299P (Fast Recovery)
BY500-100 thru BY500-800 (Fast Recovery)
BYX55-350P and BYX55-600P

Features:

- High Surge Current Capability
- Void-Free Plastic DO 27A Package
- High Current Operation
- Typical I_R less than 1 μ A (1N5400, P300)
- Exceeds Environmental Standards of MIL-STD-19500/228
- High Temperature Soldering Guaranteed 350°C/10 Seconds/10 mm Lead Length at 2,25 kg Tension
- Controlled Soft Recovery guarantees low RFI and high Efficiency Switching Characteristics of BY296P thru BY299P and BY500-100 thru BY500-800.
- Silver Plated Axial Leads, Solderable per MIL-STD-202/208

High Current Plastic Silicon Rectifiers 6 to 25 AMP

Types: AR25A thru AR25M
P600A thru P600K

Features:

- High Current Lead Mounted (P600)
- Diffused Junction
- High Surge Current: 400 Ampere at $T_j = 175^\circ\text{C}$
- Low Leakage
- Tinned Copper Leads (P600)
- Silver Plated Copper (AR25)

High Voltage Plastic Rectifiers

Types: 1N1730 A thru 1N1734A
HVPR20 thru HVPR80
HVPR15-9 thru HVPR15-15
HVPR10-06 thru HVPR10-14

Features:

- Diffused Junction
- Low Forward Voltage Drop
- High Forward Overload Surge Rating
- Avalanche Operation
- Ideal for Magnetron Power Supply in Micro Wave Ovens.



QUICK GUIDE TO PLASTIC RECTIFIERS

TYPE	1N4001 thru 1N4007	BYX55-350P* and BYX55-600P*	BY296P* thru BY299P*	BY500-100* thru BY500-800*	BY251P thru BY255P	1N5400 thru 1N5408	P300A thru P300M	P600A thru P600M	AR25A thru AR25M
CASE	DO41	DO27A	DO27A	DO27C	DO27A	DO27A	DO27A	P600	AR25
I_o (A)	1.0	1.2	2.0	5.0	3.0	3.0	3.0	6.0	25
@ T_A (°C)	75	55	55	45	75	105	105	60	150 T_c
$V_R = 50$ (V)	1N4001					1N5400	P300A	P600A	AR25A
$V_R = 100$ (V)	1N4002		BY296P	BY500-100		1N5401	P300B	P600B	AR25B
$V_R = 200$ (V)	1N4003		BY297P	B4500-200	BY251P	1N5402	P300D	P600D	AR25D
$V_R = 300$ (V)						1N5403			
$V_R = 400$ (V)	1N4004	BYX55-350P	BY298P	BY500-400	BY252P	1N5404	P300G	P600G	AR25G
$V_R = 500$ (V)						1N5405			
$V_R = 600$ (V)	1N4005			BY500-600	BY253P	1N5406	P300J	P600J	AR25J
$V_R = 800$ (V)	1N4006	BYX55-600P	BY299P	BY500-800	BY254P	1N5407	P300K	P600K	AR25K
$V_R = 1000$ (V)	1N4007					1N5408	P300M		
$V_R > 1000$ (V)					BY255P				
SURGE (A)	30	40	70	200	100	200	200	400	400
V_F (V)	1.1	1.25	1.3	1.25	1.1	1.2	1.1	1.25	1.0
Page	15	21	22	23	17	16	18	19	20

* Fast Recovery



QUICK GUIDE TO HV PLASTIC RECTIFIERS

TYPE	1N1730A thru 1N1734A	HVPR20 thru HVPR80	HVPR15	HVPR10-06 thru HVPR10-14	TYPE
I_o (A)	0.35				I_o (A)
@ T_A (°C)	25				@ T_A (°C)
SURGE (A)	6				SURGE (A)
$V_R = 1000$ (V)	1N1730A				$V_R = 1000$ (V)
$V_R = 1500$ (V)	1N1731A				$V_R = 1500$ (V)
$V_R = 2000$ (V)	1N1732A	HVPR20			$V_R = 2000$ (V)
$V_R = 3000$ (V)	1N1733A	HVPR30			$V_R = 3000$ (V)
$V_R = 4000$ (V)		HVPR40			$V_R = 4000$ (V)
$V_R = 5000$ (V)	1N1734A	HVPR50			$V_R = 5000$ (V)
$V_R = 6000$ (V)		HVPR60		HVPR10-06	$V_R = 6000$ (V)
$V_R = 8000$ (V)		HVPR80	HVPR15-9	HVPR10-08	$V_R = 8000$ (V)
$V_R = 10000$ (V)			HVPR15-11	HVPR10-10	$V_R = 10000$ (V)
$V_R = 12000$ (V)			HVPR15-13	HVPR10-12	$V_R = 12000$ (V)
$V_R = 14000$ (V)				HVPR10-14	$V_R = 14000$ (V)
$V_R = 15000$ (V)			HVPR15-15		$V_R = 15000$ (V)
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1 A Plastic Rectifier

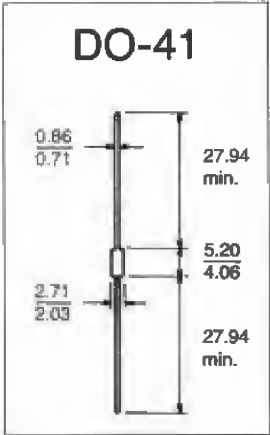
50 to 1000 V

1N4001
thru
1N4007

VOLTAGE RATINGS

Type	Maximum RMS Voltage	Maximum Recurrent Peak Reverse Voltage
1N4001	35 V	50 V
1N4002	70 V	100 V
1N4003	140 V	200 V
1N4004	280 V	400 V
1N4005	420 V	600 V
1N4006	560 V	800 V
1N4007	700 V	1000 V

CASE OUTLINE



MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature and 10 mm lead length unless otherwise specified.
Single-phase, half-wave, 50 Hz, resistive or inductive load.

Maximum Average Forward Rectified Current	1.0 A
Peak Forward Surge Current, 10 ms Single Half Sine Wave	30 A
Maximum Forward Voltage at 1.0 A _{DC}	1.1 V
Maximum Reverse Current at 25°C	5.0 μA
Maximum Reverse Current at 75°C	50.0 μA
Typical Reverse Recovery Time – Measured with I _F = 20 mA, i _r = 1 mA	20 μs
Typical Junction Capacitance at 1.0 MHz and Reverse Voltage of 4.0 V _{DC}	30 pF
Typical Thermal Resistance	50°C/W
Operating Temperature Range	–65 to +175°C
Storage Temperature Range	–65 to +175°C

RATING AND CHARACTERISTIC CURVES

Fig. 1 – Typical forward characteristic

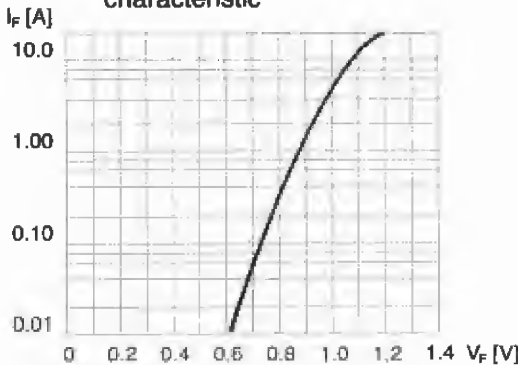
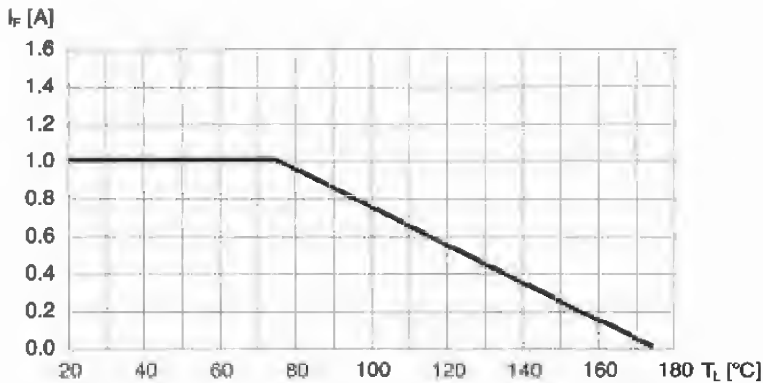


Fig. 2 – Forward derating curve





3 A Plastic Rectifier

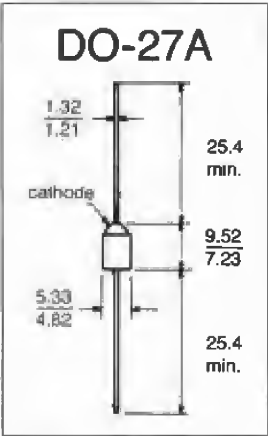
50 to 1000 V

1N5400
thru
1N5408

VOLTAGE RATINGS

Type	Maximum RMS Voltage	Maximum Recurrent Peak Reverse Voltage
1N5400	35 V	50 V
1N5401	70 V	100 V
1N5402	140 V	200 V
1N5403	210 V	300 V
1N5404	280 V	400 V
1N5405	350 V	500 V
1N5406	420 V	600 V
1N5407	560 V	800 V
1N5408	700 V	1000 V

CASE OUTLINE



MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature and 10 mm lead length unless otherwise specified.
Single-phase, half-wave, 50 Hz, resistive or inductive load.

Maximum Average Forward Rectified Current at 105°C	3.0 A
Peak Forward Surge Current, 10 ms Single Half Sine Wave	200 A
Maximum Forward Voltage at 3.0 A _{DC}	1.2 V
Maximum Reverse Current at 25°C	5.0 μA
Maximum Reverse Current at 105°C	500 μA
Typical Reverse Recovery Time – Measured with I _F = 0.5 A, I _R = 1.0 A, i _{rr} = 0.25 A	5 μs
Typical Junction Capacitance at 1.0 MHz and Reverse Voltage of 4.0 V _{DC}	60 pF
Typical Thermal Resistance	25°C/W
Operating Temperature Range	–65 to +170°C
Storage Temperature Range	–65 to +175°C

RATING AND CHARACTERISTIC CURVES

Fig. 1 — Typical forward characteristic

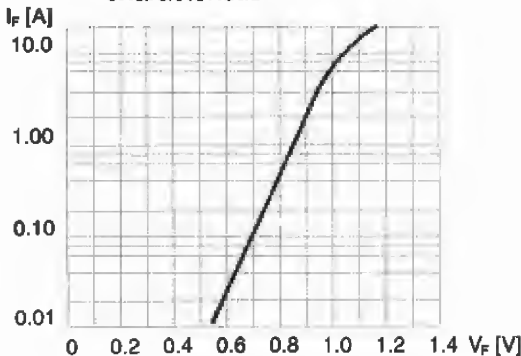
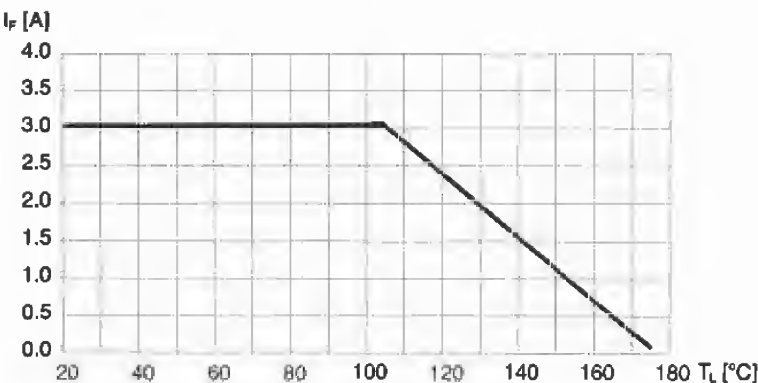


Fig. 2 — Forward derating curve





3 A Plastic Rectifier

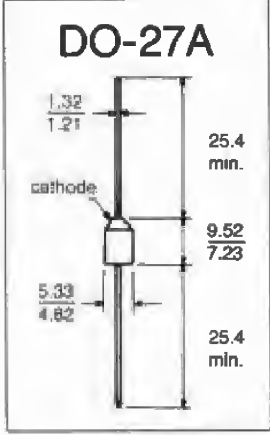
200 to 1300 V

**BY251P
thru
BY255P**

VOLTAGE RATINGS

Type	Maximum RMS Voltage	Maximum Recurrent Peak Reverse Voltage
BY251P	140 V	200 V
BY252P	280 V	400 V
BY253P	420 V	600 V
BY254P	560 V	800 V
BY255P	910 V	1300 V

CASE OUTLINE



MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature and 10 mm lead length unless otherwise specified.
Single-phase, half-wave, 50 Hz, resistive or inductive load.

Maximum Average Forward Rectified Current	3.0 A
Peak Forward Surge Current, 10 ms Single Half Sine Wave	100 A
Maximum Forward Voltage at 3.0 A _{DC}	1.1 V
Maximum Reverse Current at 25°C	5.0 μA
Maximum Reverse Current at 55°C	100 μA
Typical Reverse Recovery Time – Measured with I _F = 0.5 A, I _R = 1.0 A, i _{rr} = 0.25 A	3 μs
Typical Junction Capacitance at 1.0 MHz and Reverse Voltage of 4.0 V _{DC}	60 pF
Typical Thermal Resistance	25°C/W
Operating Temperature Range	–65 to +175°C
Storage Temperature Range	–65 to +175°C

RATING AND CHARACTERISTIC CURVES

Fig. 1 – Typical forward characteristic

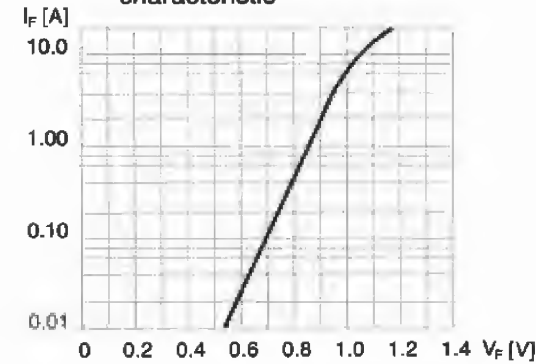
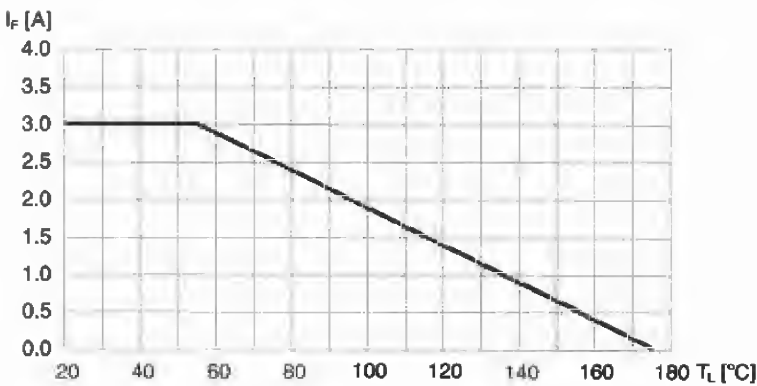


Fig. 2 – Forward derating curve





3 A Plastic Rectifier

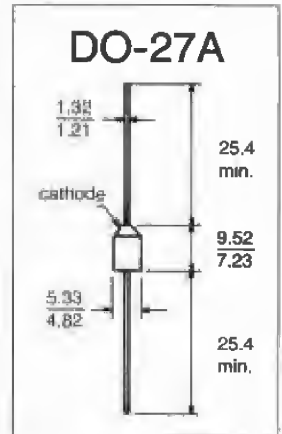
500 to 1000 V

P300
Series

VOLTAGE RATINGS

Type	Maximum RMS Voltage	Maximum Recurrent Peak Reverse Voltage
P300A	35 V	50 V
P300B	70 V	100 V
P300D	140 V	200 V
P300G	280 V	400 V
P300J	420 V	600 V
P300K	560 V	800 V
P300M	700 V	1000 V

CASE OUTLINE



MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature and 10 mm lead length unless otherwise specified.
Single-phase, half-wave, 50 Hz, resistive or inductive load.

Maximum Average Forward Rectified Current	3.0 A
Peak Forward Surge Current, 10 ms Single Half Sine Wave	200 A
Maximum Forward Voltage at 9.4 A _{DC}	1.1 V
Maximum Reverse Current at 25°C	5.0 μA
Maximum Reverse Current at 100°C	25.0 μA
Typical Reverse Recovery Time – Measured with I _F = 0.5 A, I _R = 1.0 A, i _{rr} = 0.25 A	5.0 μs
Typical Junction Capacitance at 1.0 MHz and Reverse Voltage of 4.0 V _{DC}	50.0 pF
Typical Thermal Resistance	25°C/W
Operating Temperature Range	–65 to +175°C
Storage Temperature Range	–65 to +175°C

RATING AND CHARACTERISTIC CURVES

Fig. 1 – Typical forward characteristic

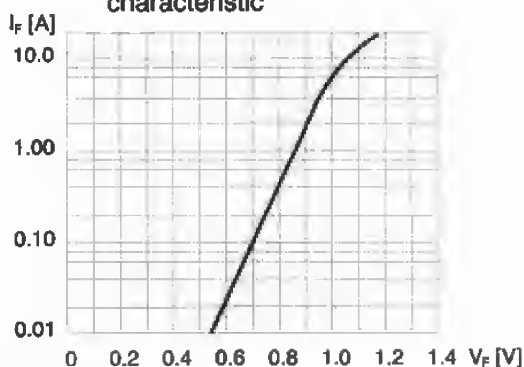
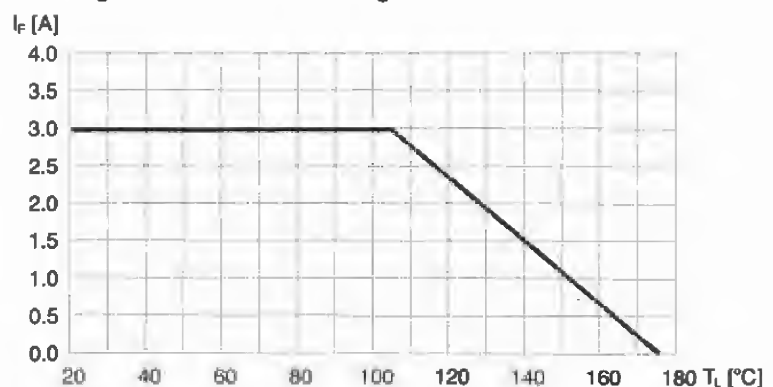


Fig. 2 – Forward derating curve





6 A Plastic Rectifier

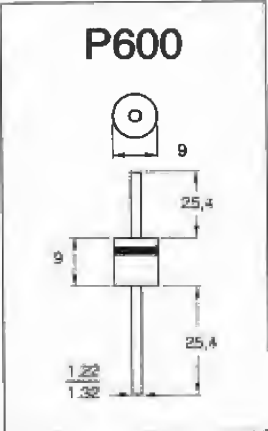
50 to 800 V

P600
Series

VOLTAGE RATINGS

Type	Maximum RMS Voltage	Maximum Recurrent Peak Reverse Voltage
P600A	35 V	50 V
P600B	70 V	100 V
P600D	140 V	200 V
P600G	280 V	400 V
P600J	420 V	600 V
P600K	560 V	800 V

CASE OUTLINE



MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature and 10 mm lead length unless otherwise specified.
Single-phase, half-wave, 50 Hz, resistive or inductive load.

Maximum Average Forward Rectified Current	6 A
Peak Forward Surge Current, 10 ms Single Half Sine Wave	400 A
Maximum Forward Voltage at 6.0 A _{DC}	0.9 V
Maximum Reverse Current at 25°C	25 μA
Maximum Reverse Current at 100°C	100 μA
Typical Reverse Recovery Time – Measured with I _F = 0.5 A, I _R = 1.0 A, i _{tr} = 0.25 A	5 μs
Typical Junction Capacitance at 1.0 MHz and Reverse Voltage of 4.0 V _{DC}	220 pF
Typical Thermal Resistance	10°C/W
Operating Temperature Range	–65 to +170°C
Storage Temperature Range	–65 to +175°C

RATING AND CHARACTERISTIC CURVES

Fig. 1 – Typical forward characteristic

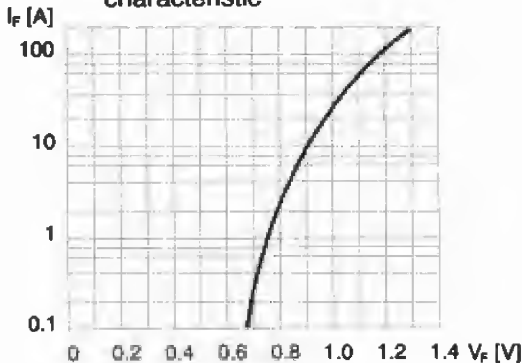
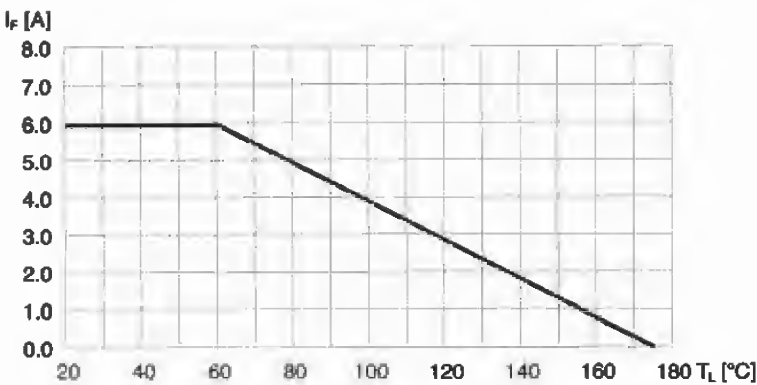


Fig. 2 – Forward derating curve





25 A Button Rectifier

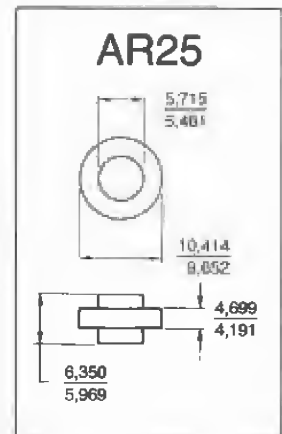
50 to 1000 V

AR25
Series

VOLTAGE RATINGS

Type	Maximum RMS Voltage	Maximum Recurrent Peak Reverse Voltage
AR25A	35 V	50 V
AR25B	70 V	100 V
AR25D	140 V	200 V
AR25G	280 V	400 V
AR25J	420 V	600 V
AR25K	560 V	800 V
AR25M	700 V	1000 V

CASE OUTLINE



MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature and 10 mm lead length unless otherwise specified.
Single-phase, half-wave, 50 Hz, resistive or inductive load.

Maximum Average Forward Rectified Current	25 A
Peak Forward Surge Current, 10 ms Single Half Sine Wave	400 A
Maximum Forward Voltage at 25 A _{DC}	1.0 V
Maximum Reverse Current at 25°C	25.0 μA
Maximum Reverse Current at 100°C	250 μA
Typical Reverse Recovery Time – Measured with I _F = 0.5 A, I _R = 1.0 A, I _{rr} = 0.25 A	5 μs
Typical Junction Capacitance at 1.0 MHz and Reverse Voltage of 4.0 V _{DC}	300 pF
Typical Thermal Resistance	2.5°C/W
Operating Temperature Range	–65 to +175°C
Storage Temperature Range	–65 to +175°C

RATING AND CHARACTERISTIC CURVES

Fig. 1 – Typical forward characteristic

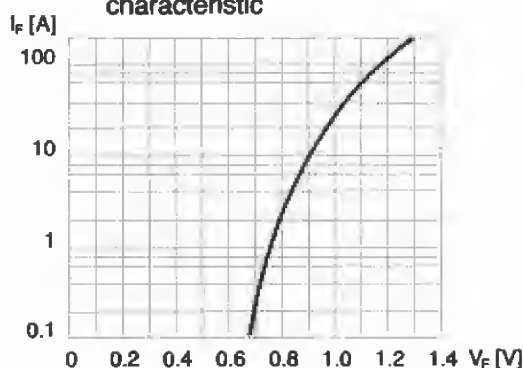
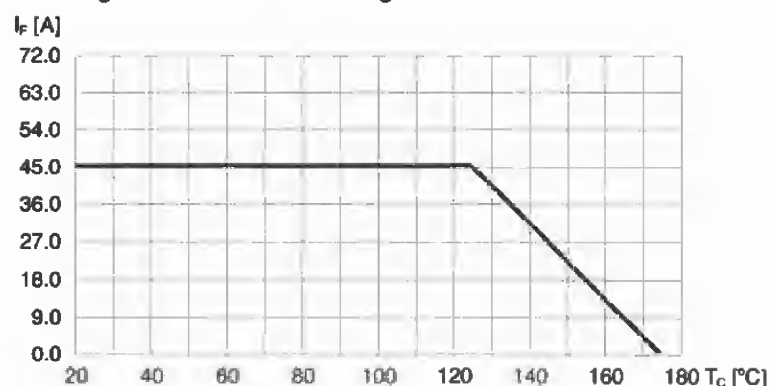


Fig. 2 – Forward derating curve





1.2 A Plastic Rectifier

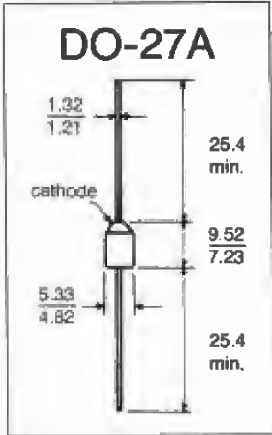
350 and 600 V / Fast Recovery

BYX55P

VOLTAGE RATINGS

Type	Maximum Recurrent Peak Reverse Voltage
BYX55-350P	350 V
BYX55-600P	600 V

CASE OUTLINE



MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature and 10 mm lead length unless otherwise specified.
Single-phase, half-wave, 50 Hz, resistive or inductive load.

Maximum Average Forward Rectified Current	1.2 A
Peak Forward Surge Current, 10 ms Single Half Sine Wave	40 A
Maximum Forward Voltage at 5.0 A _{DC}	1.25 V
Maximum Reverse Current at 25°C	5 µA
Maximum Reverse Current at 100°C	200 µA
Maximum Reverse Recovery Time – Measured with I _F = 1.0 A, V _R = 50 V	750 n
Typical Junction Capacitance at 1.0 MHz and Reverse Voltage of 4.0 V _{DC}	30 pF
Typical Thermal Resistance	25°C/W
Operating Temperature Range	–65 to +175°C
Storage Temperature Range	–65 to +175°C

RATING AND CHARACTERISTIC CURVES

Fig. 1 – Typical forward characteristic

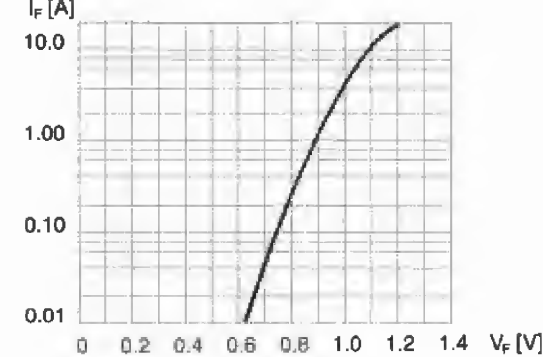
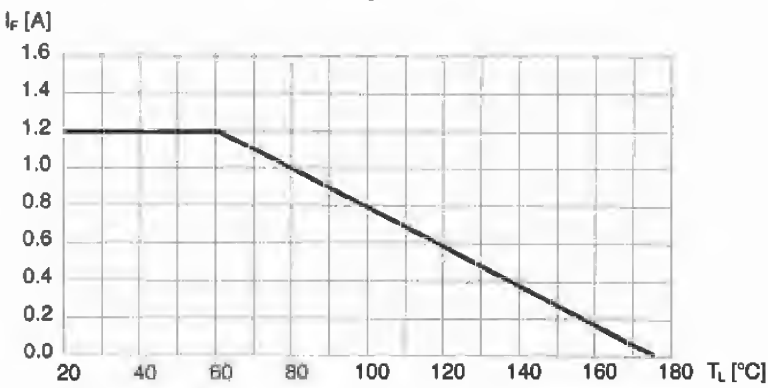


Fig. 2 – Forward derating curve





2 A Plastic Rectifier

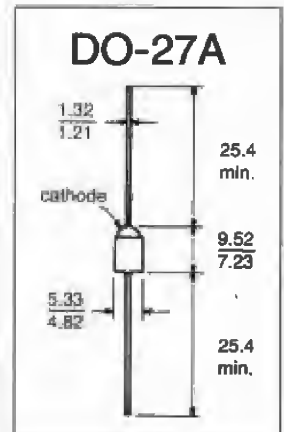
100 to 800 V / Fast Recovery

BY296P
thru
BY299P

VOLTAGE RATINGS

Type	Maximum Recurrent Peak Reverse Voltage
BY296P	100 V
BY297P	200 V
BY298P	400 V
BY299P	800 V

CASE OUTLINE



MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature and 10 mm lead length unless otherwise specified.
Single-phase, half-wave, 50 Hz, resistive or inductive load.

Maximum Average Forward Rectified Current	2.0 A
Peak Forward Surge Current, 10 ms Single Half Sine Wave	70 A
Maximum Forward Voltage at 3.0 A _{DC}	1.3 V
Maximum Reverse Current at 25°C	10 μ A
Maximum Reverse Current at 100°C	200 μ A
Maximum Reverse Recovery Time – Measured with $I_F = 0.5$ A, $I_R = 1.0$ A, $i_{rr} = 0.25$ A	500 ns
Typical Junction Capacitance at 1.0 MHz and Reverse Voltage of 4.0 V _{DC}	40 pF
Typical Thermal Resistance	25°C/W
Operating Temperature Range	–65 to +150°C
Storage Temperature Range	–65 to +175°C

RATING AND CHARACTERISTIC CURVES

Fig. 1 – Typical forward characteristic

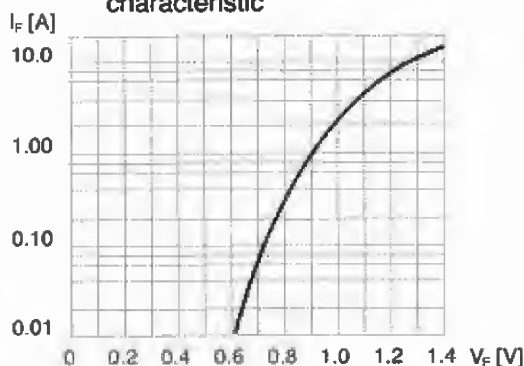
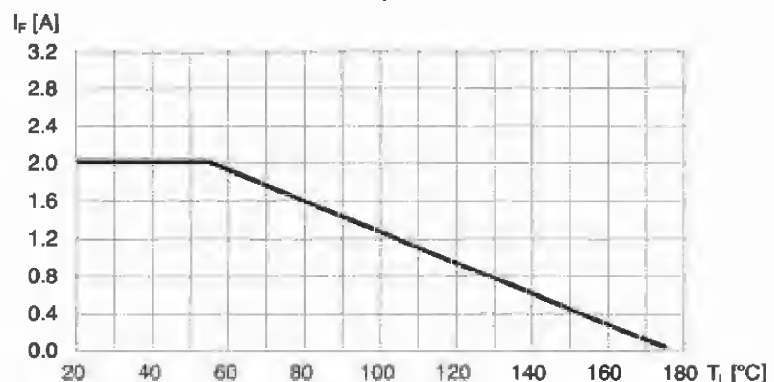


Fig. 2 – Forward derating curve





5 A Plastic Rectifier

100 to 800 V / Soft Recovery

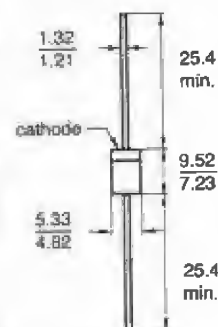
**BY500
Series**

HIGH EFFICIENCY LOW NOISE SWITCHING RECTIFIER

CASE OUTLINE

Type	Maximum RMS Voltage	Maximum Recurrent Peak Reverse Voltage
BY500-100	70 V	100 V
BY500-200	140 V	200 V
BY500-400	280 V	400 V
BY500-600	420 V	600 V
BY500-800	560 V	800 V

DO-27C



Especially designed for applications such as Switch Mode Power Supplies, Inverters, Converters, Choppers, TV Scanning, Ultrasonic-Systems, speed controlled DC Motors, low RF Interference and free Wheeling Rectifiers.

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature and 10 mm lead length unless otherwise specified.
Single-phase, half-wave, 50 Hz, resistive or inductive load.

Maximum Average Forward Rectified Current	5 A
Peak Forward Surge Current, 10 ms Single Half Sine Wave	200 A
Maximum Forward Voltage at 3.0 A _{DC}	1.25 V
Maximum Reverse Current at 25°C	10 µA
Maximum Reverse Current at 100°C	1 mA
Typical Reverse Recovery Time – Measured with I _F = 1 A, V _R = 30 V	200 ns
Typical Junction Capacitance at 1.0 MHz and Reverse Voltage of 12.0 V _{DC}	30 pF
Typical Thermal Resistance	25°C/W
Operating Temperature Range	–65 to +125°C
Storage Temperature Range	–65 to +150°C

RATING AND CHARACTERISTIC CURVES

Fig. 1 – Typical forward characteristic

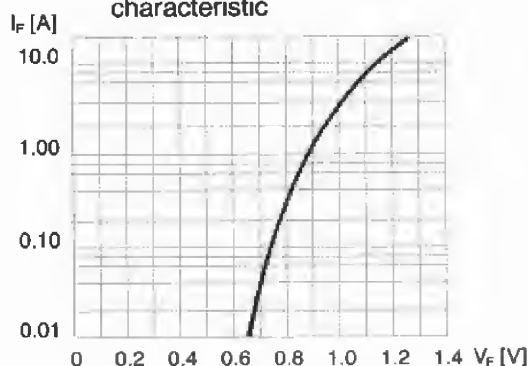
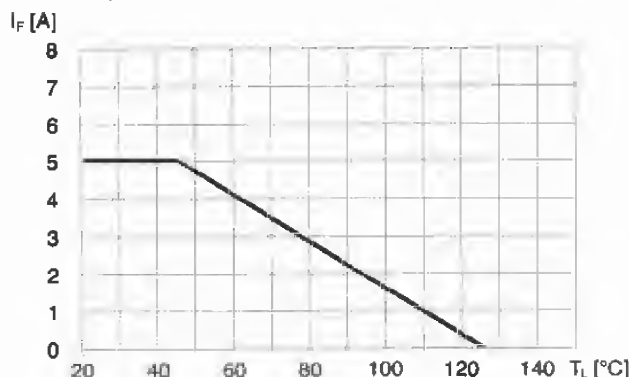


Fig. 2 – Forward derating curve





HV Plastic Rectifier

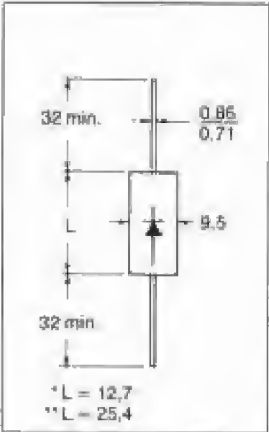
1000 to 5000 V

1N1730A
thru
1N1734A

VOLTAGE RATINGS

Type	Maximum Forward Voltage at 0.4 A _{DC}	Maximum Recurrent Peak Reverse Voltage
1N1730A*	3.0 V	1000 V
1N1731A*	3.0 V	1500 V
1N1732A**	3.0 V	2000 V
1N1733A**	6.0 V	3000 V
1N1734A**	8.0 V	5000 V

CASE OUTLINE



MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature and 10 mm lead length unless otherwise specified.
Single-phase, half-wave, 50 Hz, resistive or inductive load.

Maximum Average Forward Rectified Current at 25°C	0.35 A
Maximum Average Forward Rectified Current at 100°C	0.2 A
Maximum Average Forward Rectified Current at 175°C	0.05 A
Peak Forward Surge Current, 10 ms Single Half Sine Wave	6.0 A
Maximum Reverse Current at 25°C	1.0 µA
Maximum Reverse Current at 150°C	12.0 µA
Operating Temperature Range	-65 to +200°C
Storage Temperature Range	-65 to +200°C

RATING AND CHARACTERISTIC CURVES

Fig. 1 — Typical forward characteristic

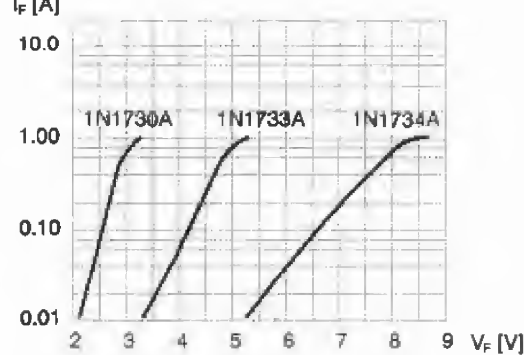
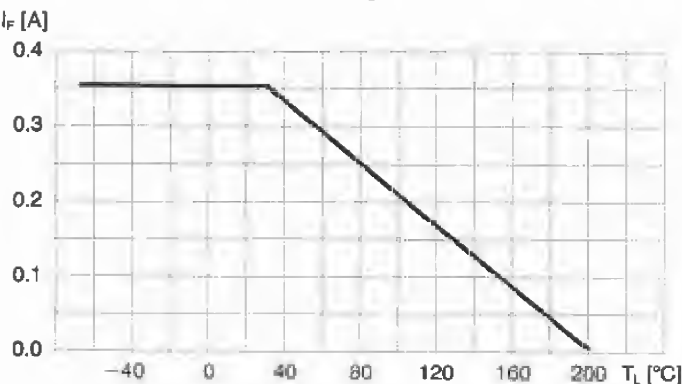


Fig. 2 — Forward derating curve





HV Plastic Rectifier

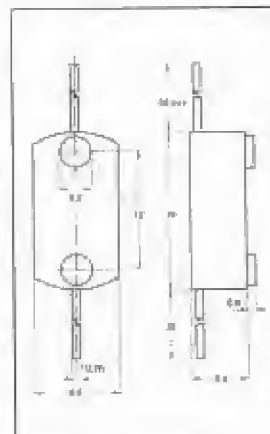
2000 to 8000 V

**HVPR
Series**

VOLTAGE RATINGS

Type	Maximum Recurrent Peak Reverse Voltage
HVPR20	2000 V
HVPR30	3000 V
HVPR40	4000 V
HVPR50	5000 V
HVPR60	6000 V
HVPR80	8000 V

CASE OUTLINE



MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature and 10 mm lead length unless otherwise specified.
Single-phase, half-wave, 50 Hz, resistive or inductive load.

Maximum Average Forward Rectified Current	0.25 A
Peak Forward Surge Current, 10 ms Single Half Sine Wave	30 A
Maximum Forward Voltage at 0.25 A _{DC}	8 V
Maximum Reverse Current at 25°C	10 µA
Maximum Reverse Current at 125°C	100 µA
Typical Junction Capacitance at 1.0 MHz and Reverse Voltage of 100 V _{DC}	5 pF
Typical Thermal Resistance	35 °C/W
Operating Temperature Range	-40 to +125°C
Storage Temperature Range	-50 to +150°C

RATING AND CHARACTERISTIC CURVES

Fig. 1 – Typical forward characteristic

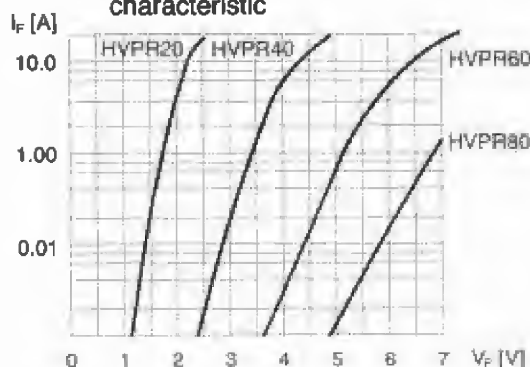
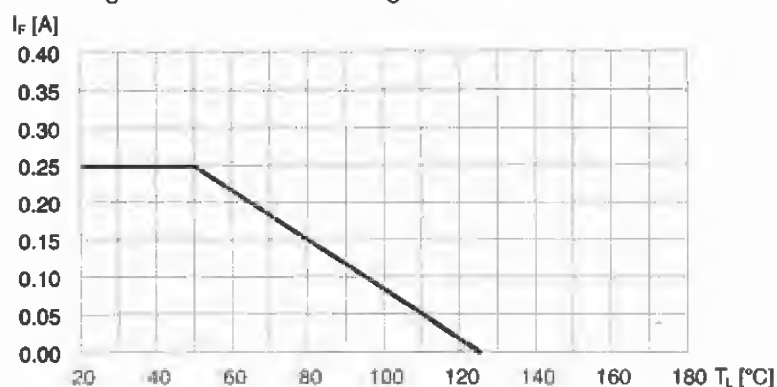


Fig. 2 – Forward derating curve





HV Plastic Rectifier

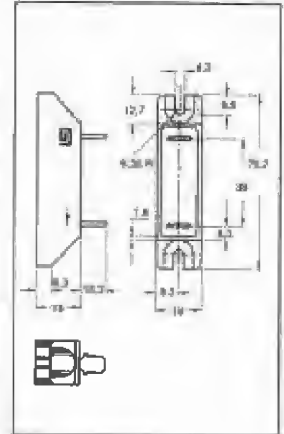
6000 to 14000 V

**HVPR10
Series**

VOLTAGE RATINGS

Type	Maximum Recurrent Peak Reverse Voltage
HVPR10-06	6000 V
HVPR10-08	8000 V
HVPR10-10	10000 V
HVPR10-12	12000 V
HVPR10-14	14000 V

CASE OUTLINE



MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature and 10 mm lead length unless otherwise specified.
Single-phase, half-wave, 50 Hz, resistive or inductive load.

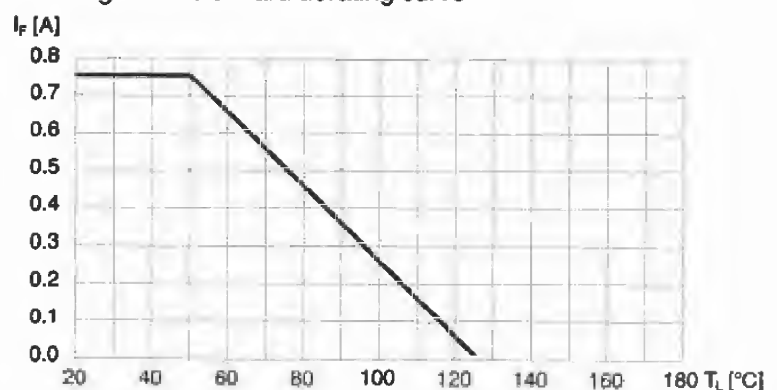
Maximum Average Forward Rectified Current	0.75 A
Peak Forward Surge Current, 10 ms Single Half Sine Wave	250 A
Maximum Forward Voltage at 0.75 A _{DC}	14 V
Maximum Reverse Current at 25°C	5 μ A
Operating Temperature Range	-20 to +125°C
Storage Temperature Range	-20 to +125°C

RATING AND CHARACTERISTIC CURVES

Fig. 1 - Typical forward characteristic



Fig. 2 - Forward derating curve





Glass Rectifier

0.4 to 3 Amperes

50 V
to
5000 V

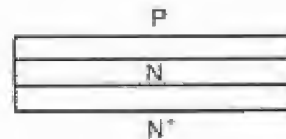
Device Design

The Glass-Amp II is a hermetically sealed, cavity-free, diffused junction rectifier with unsurpassed operating and surge characteristics at high temperature.

Cavity-free construction with a specially developed extremely pure glass in direct contact with the silicon junction plus durable heat sink design obviate the need for solder joints and compression contact parts. The carefully matched expansion characteristics of the glass and metal parts in combination with the direct contact of the glass and silicon junction make the active rectifying elements impervious to surface contamination, moisture or other external chemical agents. Further, the long term degradation associated with organic junction protection is avoided.

There are many steps necessary to produce such a device :

1 – Diffuse a PN junction into a slice of silicon



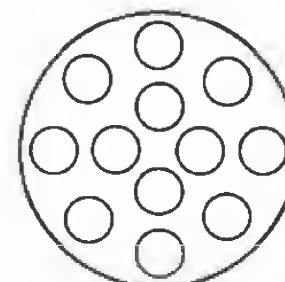
Diffused Slice

2 – Evaporate aluminium on both sides of the slice to make metallurgical contact



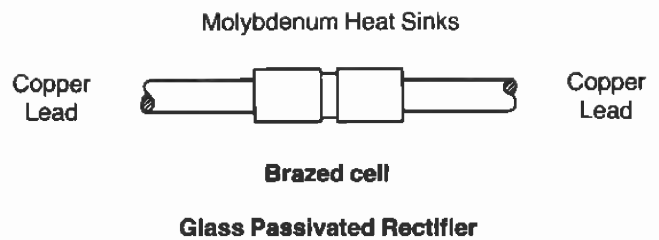
Metallized Slice

3 – Sandblast the slice to produce a round beveled die



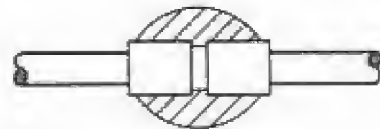
Sandblasted Round Dice

- 4 – Braze the die between two molybdenum heat sinks to which leads have been attached at approximately 700°C.



- 5 – Clean the assembly by chemically etching, washing and drying.
- 6 – Apply glass in the form of a frit to the die and molybdenum assembly.

- 7 – Melt the glass by heating in an oven to approximately 600°C.



Glass Passivated Rectifier

- 8 – Perform finishing operations such as lead tinning, electrical testing and marking.

Package Design

The small size of the glass package with its capability up to 3 Ampere permits greater packing densities in electronic assemblies and equipment, while increasing reliability. Furthermore, only high temperature brazing operations are used to withstand the 600°C required to melt and fuse the glass. This technique eliminates solder construction and tremendously enhances mechanical strength and temperature cycling capability, increasing operating and storage temperature range while reducing thermal resistance.

Reliability

Specified reliability data on Glass-Amp II devices are available from the General Instrument Semiconductor Components Division Reliability Department. The basic design of the Glass-Amp II rectifier and the strict positive controls over materials and manufacturing processes provide assurance of failure-free performance under the most severe conditions. Processing facilities have been geared to follow the procedural requirements of Military Standard 750. Glass-Amp II rectifiers are capable of withstanding environmental extremes in excess of MIL-S-19500/286 and of meeting the requirements of MIL-S-19500E, MIL-STD-883, MIL-Q-9858 and MIL-I-45208. Assurance of production uniformity and reliability is provided by a test technique called „Operational Load Line Testing“, which has proven product reliability with over 1 Billion Glass-Amp rectifiers now in use.

**Glass Passivated Silicon Diodes 0.4 AMP**

Type: 1N645 thru 1N649

Features:

- High Temperature Metallurgically Bonded
- High Efficiency and Rectification Ratio
- Ideally Suited for Miniaturized Equipment
- Case: One Piece Glass, Hermetically Sealed
- Tin Plated Axial Leads, Solderable per MIL-STD-202/208
- Operating from -65°C to $+175^{\circ}\text{C}$
- Low Leakage

Glass Passivated Silicon Rectifiers 1 to 3 AMP

Types: 1N3611 thru 1N3614
1N4245 thru 1N4249
1N5059 thru 1N5062
1N5624 thru 1N5627
G1A thru G1M
G2A thru G2M
G3A thru G3M

Features:

- Glass Passivated Junction
- High Mechanical Strength
- Storage up to 200°C
- Voidless Construction
- Hermetically Sealed
- Avalanche Operation
- Low Leakage
- High Conductance
- Tin Plated Axial Leads, Solderable per MIL-STD-202/208

Glass Passivated Fast Recovery Silicon Rectifiers 1 to 3 AMP

Types: 1N4942 thru 1N4948
1N5614 thru 1N5622
1N5615 thru 1N5623
RG1A thru RG1M
RG3A thru RG3M

Features:

- Glass Passivated Junction
- High Rectification Efficiency to 100 kHz
- High Mechanical Strength
- Low Leakage
- Hermetically Sealed
- Storage up to 200°C
- Tin Plated Axial Leads, Solderable per MIL-STD-202/208

Glass Passivated High Voltage Silicon Rectifiers 0.15 to 1.5 AMP

Types: CG1, DG1
HVG-2 thru HVG-5
BY228

Features:

- All Advantages of a Hermetically Sealed Glass Passivated Junction
- Especially designed for Clamper/Damper Applications in Television Circuits
- Low Leakage
- High Mechanical Strength
- Tin Plated Axial Leads, Solderable per MIL-STD-202/208



QUICK GUIDE TO GLASS PASSIVATED RECTIFIERS

TYPE	1N645 thru 1N649	1N3611 thru 1N3614	1N4245 thru 1N4249	1N4942* thru 1N4948*	RG 1 A* thru RG 1 M*	1N5059 thru 1N5062	1N5614 thru 1N5622	1N5615* thru 1N5623*	TYPE
CASE	GPD	GPR	GPR	GPR	GPR	GPR	GPR	GPR	CASE
I_o (A)	0.4	1.0	1.0	1.0	1.0	1.0	1.0	1.0	I_o (A)
@ T_A (°C)	25	100	55	55	55	55	55	55	@ T_A (°C)
$V_R = 50$ (V)					RG 1 A				$V_R = 50$ (V)
$V_R = 100$ (V)					RG 1 B				$V_R = 100$ (V)
$V_R = 200$ (V)	1N645	1N3611	1N4245	1N4942	RG 1 D	1N5059	1N5614	1N5615	$V_R = 200$ (V)
$V_R = 300$ (V)	1N646			1N4943					$V_R = 300$ (V)
$V_R = 400$ (V)	1N647	1N3612	1N4246	1N4944	RG 1 G	1N5060	1N5616	1N5617	$V_R = 400$ (V)
$V_R = 500$ (V)	1N648			1N4945					$V_R = 500$ (V)
$V_R = 600$ (V)	1N649	1N3613	1N4247	1N4946	RG 1 J	1N5061	1N5618	1N5619	$V_R = 600$ (V)
$V_R = 800$ (V)		1N3614	1N4248	1N4947	RG 1 K	1N5062	1N5620	1N5621	$V_R = 800$ (V)
$V_R = 1000$ (V)			1N4249	1N4948	RG 1 M		1N5622	1N5623	$V_R = 1000$ (V)
$V_R > 1000$ (V)									$V_R > 1000$ (V)
SURGE (A)	5	20	25	30	30	50	50	50	SURGE (A)
V_F (V)	1.0	1.1	1.2	1.3	1.3	1.2	1.2	1.2	V_F (V)
Page	33	34	35	41	44	36	42	43	Page



QUICK GUIDE TO GLASS PASSIVATED RECTIFIERS

TYPE	G 1 A thru G 1 M	CG 1 and DG 1	BY228	G 2 A thru G 2 M	RG 3 A* thru RG 3 M*	G 3 A thru G 3 M	1N5624 thru 1N5627	TYPE
CASE	GPR	GPR	GPR 3	GPR	GPR 3	GPR 3	GPR 3	CASE
I_o (A)	1.0	1.5	2.5	2.0	3.0	3.0	3.0	I_o (A)
@ T_A (°C)	100	55	55	75	55	70	70	@ T_A (°C)
$V_R = 50$ (V)	G 1 A			G 2 A	RG 3 A	G 3 A		$V_R = 50$ (V)
$V_R = 100$ (V)	G 1 B			G 2 B	RG 3 B	G 3 B		$V_R = 100$ (V)
$V_R = 200$ (V)	G 1 D			G 2 D	RG 3 D	G 3 D	1N5624	$V_R = 200$ (V)
$V_R = 300$ (V)								$V_R = 300$ (V)
$V_R = 400$ (V)	G 1 G			G 2 G	RG 3 G	G 3 G	1N5625	$V_R = 400$ (V)
$V_R = 500$ (V)								$V_R = 500$ (V)
$V_R = 600$ (V)	G 1 J			G 2 J	RG 3 J	G 3 J	1N5626	$V_R = 600$ (V)
$V_R = 800$ (V)	G 1 K			G 2 K	RG 3 K	G 3 K	1N5627	$V_R = 800$ (V)
$V_R = 1000$ (V)	G 1 M			G 2 M	RG 3 M	G 3 M		$V_R = 1000$ (V)
$V_R > 1000$ (V)		CG 1/DG 1	BY228					$V_R > 1000$ (V)
SURGE (A)	50	50	100	50	100	125	125	SURGE (A)
V_F (V)	1.1	1.0	1.3	1.1	1.3	1.1	1.0	V_F (V)
Page	37	46	47	38	45	40	39	Page

* Fast Recovery



0.4 A Glass Diode

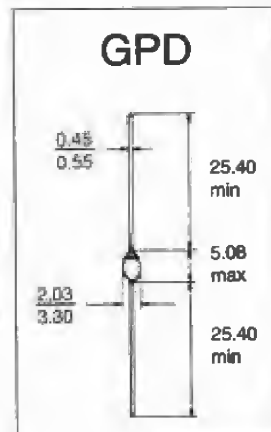
225 to 600 V

1N645
thru
1N649

VOLTAGE RATINGS

Type	Maximum Recurrent Peak Reverse Voltage
1N645	225 V
1N646	300 V
1N647	400 V
1N648	500 V
1N649	600 V

CASE OUTLINE



MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature and 10 mm lead length unless otherwise specified.
Single-phase, half-wave, 50 Hz, resistive or inductive load.

Maximum Average Forward Rectified Current	400 mA
Peak Forward Surge Current, 10 ms Single Half Sine Wave	5 A
Maximum Forward Voltage at 0.4 A _{DC}	1.0 V
Maximum Reverse Current at 25°C	0.2 μA
Maximum Reverse Current at 100°C	15 μA
Maximum Reverse Recovery Time – Measured with $I_F = 20$ mA, $i_{rr} = 1$ mA	20 μs
Typical Junction Capacitance at 1.0 MHz and Reverse Voltage of 4.0 V _{DC}	15 pF
Typical Thermal Resistance	100°C/W
Operating Temperature Range	–65 to +175°C
Storage Temperature Range	–65 to +200°C

RATING AND CHARACTERISTIC CURVES

Fig. 1 – Typical forward characteristic

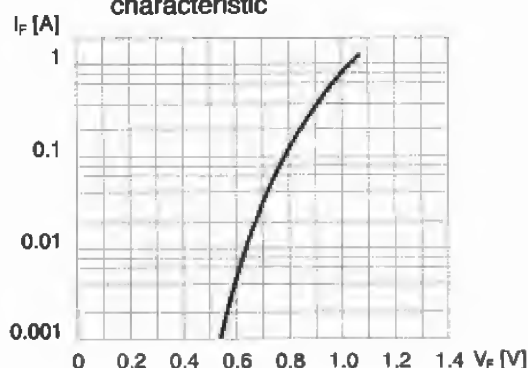
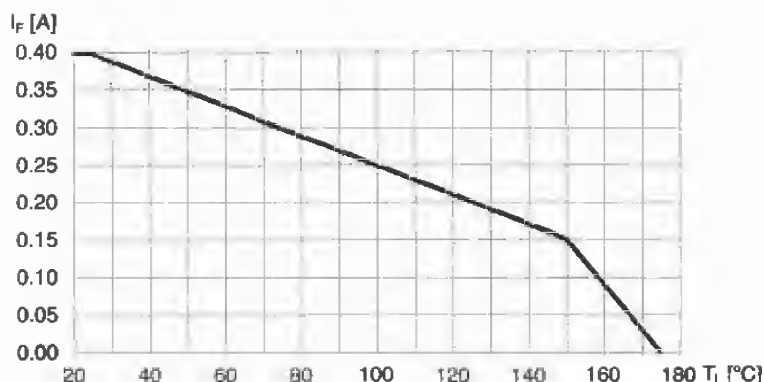


Fig. 2 – Forward derating curve





1 A Glass Rectifier

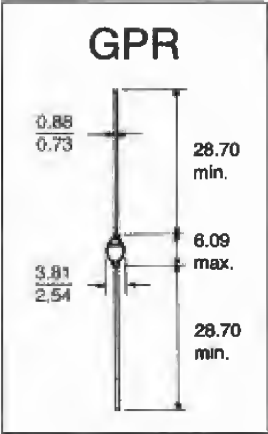
200 to 800 V

1N3611
thru
1N3614

VOLTAGE RATINGS

Type	Maximum RMS Voltage	Maximum Recurrent Peak Reverse Voltage
1N3611	140 V	200 V
1N3612	280 V	400 V
1N3613	420 V	600 V
1N3614	560 V	800 V

CASE OUTLINE



MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature and 10 mm lead length unless otherwise specified.
Single-phase, half-wave, 50 Hz, resistive or inductive load.

Maximum Average Forward Rectified Current @100°C	1 A
Peak Forward Surge Current, 10 ms Single Half Sine Wave	30 A
Maximum Forward Voltage at 2.0 A _{DC}	1.1 V
Maximum Reverse Current at 25°C	1.0 μA
Maximum Reverse Current at 150°C	300 μA
Maximum Reverse Recovery Time – Measured with I _F = 20 A, i _{rr} = 1 mA	20 μs
Typical Junction Capacitance at 1.0 MHz and Reverse Voltage of 4.0 V _{DC}	15 pF
Typical Thermal Resistance	50°C/W
Operating Temperature Range	–65 to +175°C
Storage Temperature Range	–65 to +300°C

RATING AND CHARACTERISTIC CURVES

Fig. 1 – Typical forward characteristic

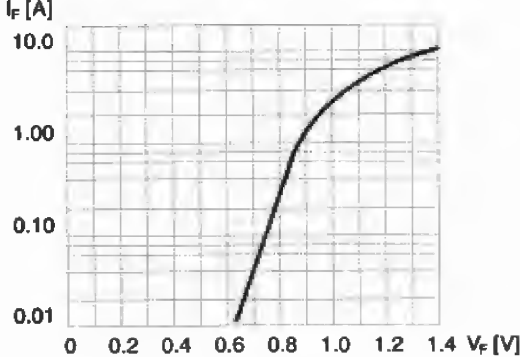
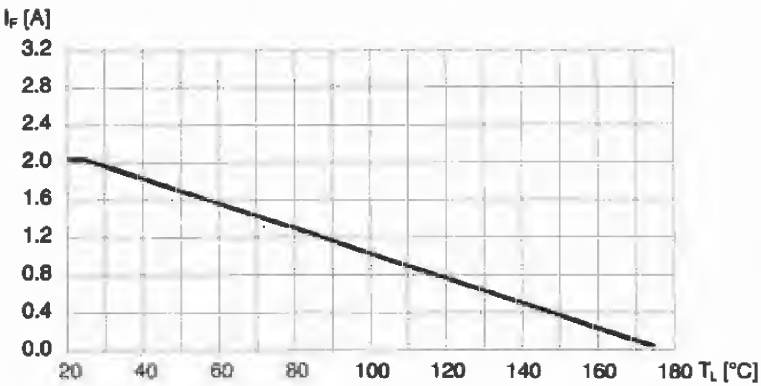


Fig. 2 – Forward derating curve





1 A Glass Rectifier

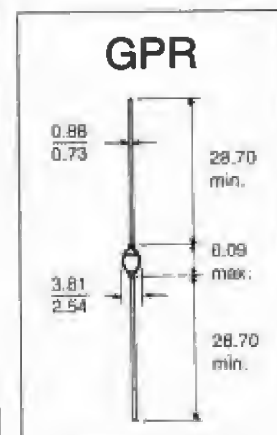
200 to 1000 V

1N4245
thru
1N4249

VOLTAGE RATINGS

Type	Maximum RMS Voltage	Maximum Recurrent Peak Reverse Voltage
1N4245	140 V	200 V
1N4246	280 V	400 V
1N4247	420 V	600 V
1N4248	560 V	800 V
1N4249	700 V	1000 V

CASE OUTLINE



MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature and 10 mm lead length unless otherwise specified.
Single-phase, half-wave, 50 Hz, resistive or inductive load.

Maximum Average Forward Rectified Current	1 A
Peak Forward Surge Current, 10 ms Single Half Sine Wave	25 A
Maximum Forward Voltage at 1.0 A _{DC}	1.2 V
Maximum Reverse Current at 25°C	1.0 μ A
Maximum Reverse Current at 125°C	25 μ A
Typical Reverse Recovery Time – Measured with $I_F = 0.5$ A, $I_R = 1.0$ A, $i_{rr} = 0.25$ A	2 μ s
Typical Junction Capacitance at 1.0 MHz and Reverse Voltage of 4.0 V _{DC}	15 pF
Typical Thermal Resistance	50°C/W
Operating Temperature Range	–65 to +160°C
Storage Temperature Range	–65 to +200°C

RATING AND CHARACTERISTIC CURVES

Fig. 1 – Typical forward characteristic

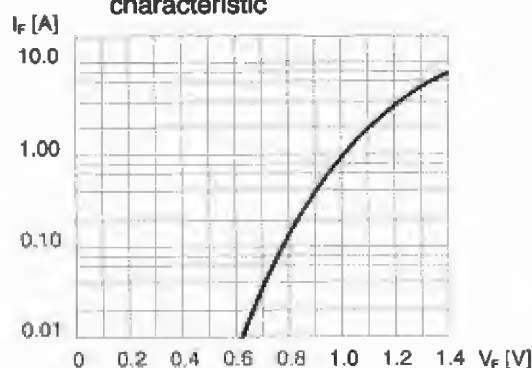
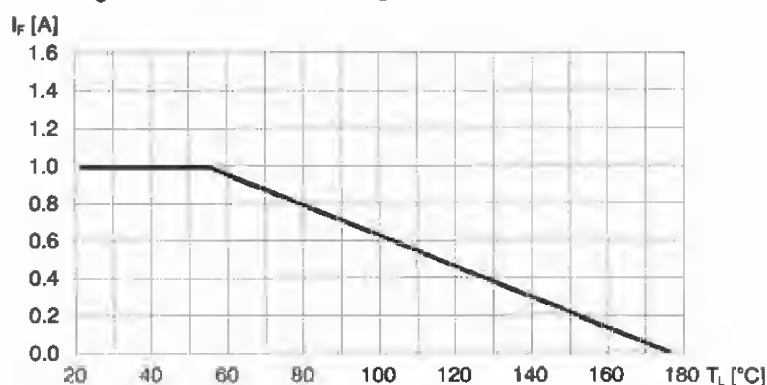


Fig. 2 – Forward derating curve





1 A Glass Rectifier

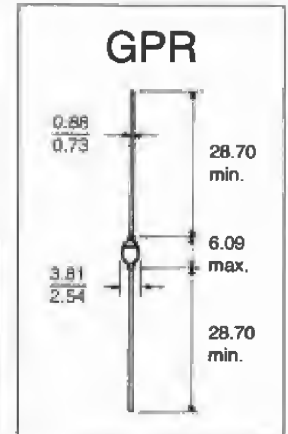
200 to 800 V

1N5059
thru
1N5062

VOLTAGE RATINGS

Type	Maximum RMS Voltage	Maximum Recurrent Peak Reverse Voltage
1N5059	140 V	200 V
1N5060	280 V	400 V
1N5061	420 V	600 V
1N5062	560 V	800 V

CASE OUTLINE



MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature and 10 mm lead length unless otherwise specified.
Single-phase, half-wave, 50 Hz, resistive or inductive load.

Maximum Average Forward Rectified Current	1 A
Peak Forward Surge Current, 10 ms Single Half Sine Wave	50 A
Maximum Forward Voltage at 1.0 A _{DC}	1.2 V
Maximum Reverse Current at 25°C	5.0 μ A
Maximum Reverse Current at 75°C	100 μ A
Typical Reverse Recovery Time — Measured with $I_F = 0.5$ A, $I_R = 1.0$ A, $i_{rr} = 0.25$ A	2 μ s
Typical Junction Capacitance at 1.0 MHz and Reverse Voltage of 4.0 V _{DC}	20 pF
Typical Thermal Resistance	50°C/W
Operating Temperature Range	−65 to +175°C
Storage Temperature Range	−65 to +175°C

RATING AND CHARACTERISTIC CURVES

Fig. 1 — Typical forward characteristic

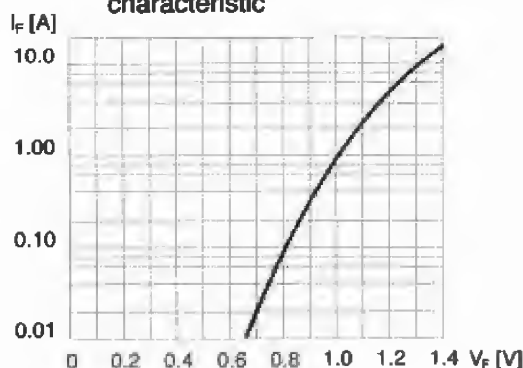
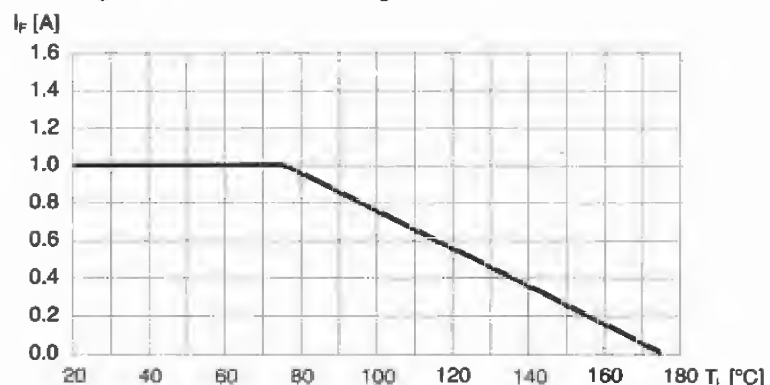


Fig. 2 — Forward derating curve





1 A Glass Rectifier

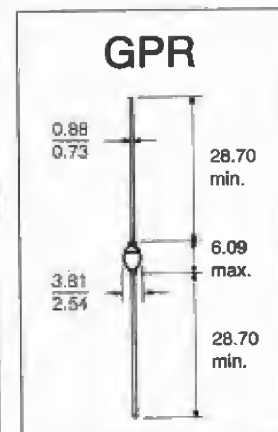
50 to 1000 V

G1
Series

VOLTAGE RATINGS

Type	Maximum Forward Voltage at 1.0 A _{DC}	Maximum RMS Voltage	Maximum Recurrent Peak Reverse Voltage
G1A	1.2 V	35 V	50 V
G1B	1.2 V	70 V	100 V
G1D	1.1 V	140 V	200 V
G1G	1.1 V	280 V	400 V
G1J	1.1 V	420 V	600 V
G1K	1.1 V	560 V	800 V
G1M	1.1 V	700 V	1000 V

CASE OUTLINE



MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature and 10 mm lead length unless otherwise specified.
Single-phase, half-wave, 50 Hz, resistive or inductive load.

Maximum Average Forward Rectified Current	1 A
Peak Forward Surge Current, 10 ms Single Half Sine Wave	50 A
Maximum Reverse Current at 25°C	1.0 μ A
Maximum Reverse Current at 100°C	100 μ A
Typical Reverse Recovery Time -- Measured with $I_F = 0.5$ A, $I_R = 1.0$ A, $t_r = 0.25$ A	2 μ s
Typical Junction Capacitance at 1.0 MHz and Reverse Voltage of 4.0 V _{DC}	14 pF
Typical Thermal Resistance	50°C/W
Operating Temperature Range	-65 to +175°C
Storage Temperature Range	-65 to +300°C

RATING AND CHARACTERISTIC CURVES

Fig. 1 -- Typical forward characteristic

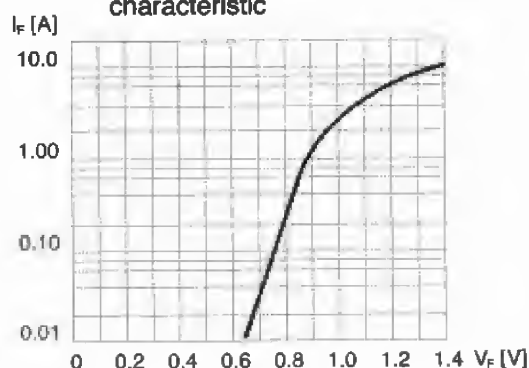
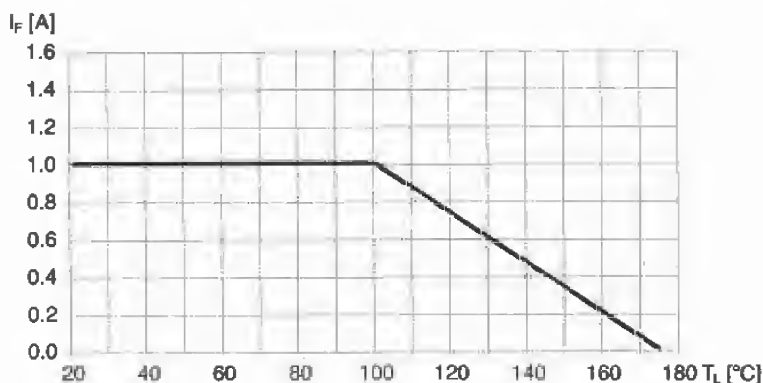


Fig. 2 -- Forward derating curve





2 A Glass Rectifier

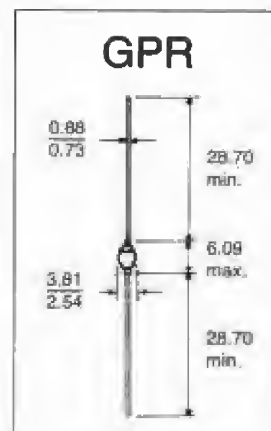
50 to 1000 V

G2
Series

VOLTAGE RATINGS

Type	Maximum RMS Voltage	Maximum Recurrent Peak Reverse Voltage
G2A	35 V	50 V
G2B	70 V	100 V
G2D	140 V	200 V
G2G	280 V	400 V
G2J	420 V	600 V
G2K	560 V	800 V
G2M	700 V	1000 V

CASE OUTLINE



MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature and 10 mm lead length unless otherwise specified.
Single-phase, half-wave, 50 Hz, resistive or inductive load.

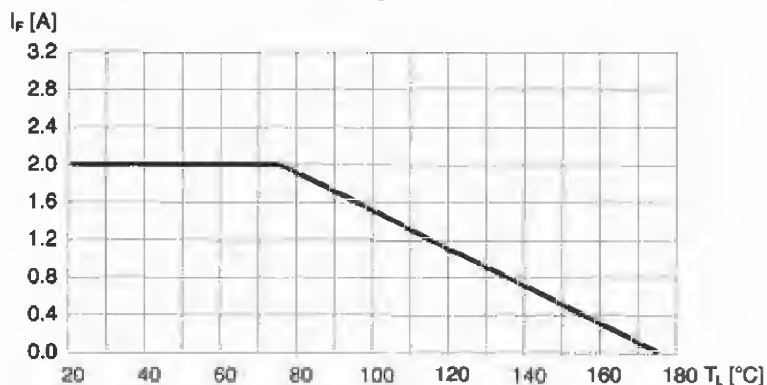
Maximum Average Forward Rectified Current	2 A
Peak Forward Surge Current, 10 ms Single Half Sine Wave	50 A
Maximum Forward Voltage at 2.0 A _{DC}	1.2 V
Maximum Reverse Current at 25°C	0.2 μ A
Maximum Reverse Current at 100°C	10 μ A
Maximum Reverse Recovery Time – Measured with $I_F = 0.5$ A, $I_R = 1.0$ A, $i_{rr} = 0.25$ A	2 μ s
Typical Junction Capacitance at 1.0 MHz and Reverse Voltage of 4.0 V _{DC}	14 pF
Typical Thermal Resistance	50°C/W
Operating Temperature Range	–65 to +175°C
Storage Temperature Range	–65 to +300°C

RATING AND CHARACTERISTIC CURVES

Fig. 1 – Typical forward characteristic



Fig. 2 – Forward derating curve





3 A Glass Rectifier

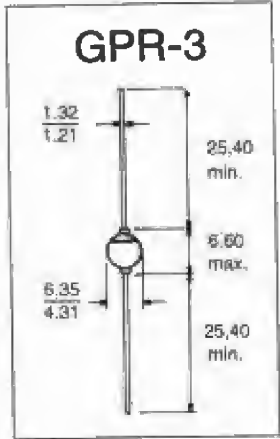
200 to 800 V

1N5624
thru
1N5627

VOLTAGE RATINGS

Type	Maximum RMS Voltage	Maximum Recurrent Peak Reverse Voltage
1N5624	140 V	200 V
1N5625	280 V	400 V
1N5626	420 V	600 V
1N5627	560 V	800 V

CASE OUTLINE



MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature and 10 mm lead length unless otherwise specified.
Single-phase, half-wave, 50 Hz, resistive or inductive load.

Maximum Average Forward Rectified Current	3 A
Peak Forward Surge Current, 10 ms Single Half Sine Wave	125 A
Maximum Forward Voltage at 3.0 A _{DC}	1.0 V
Maximum Reverse Current at 25°C	1.0 μA
Maximum Reverse Current at 100°C	100 μA
Typical Reverse Recovery Time – Measured with I _F = 0.5 A, I _R = 1.0 A, i _{rr} = 0.25 A	3 μs
Typical Junction Capacitance at 1.0 MHz and Reverse Voltage of 4.0 V _{DC}	30 pF
Typical Thermal Resistance	35°C/W
Operating Temperature Range	–65 to +175°C
Storage Temperature Range	–65 to +300°C

RATING AND CHARACTERISTIC CURVES

Fig. 1 – Typical forward characteristic

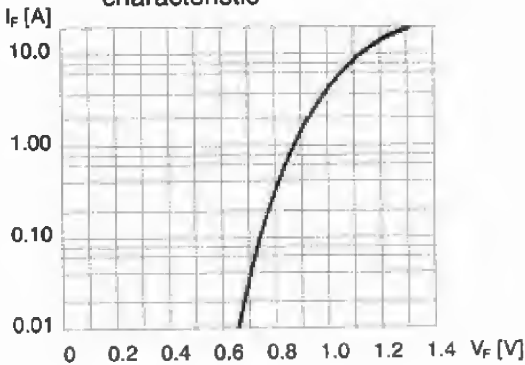
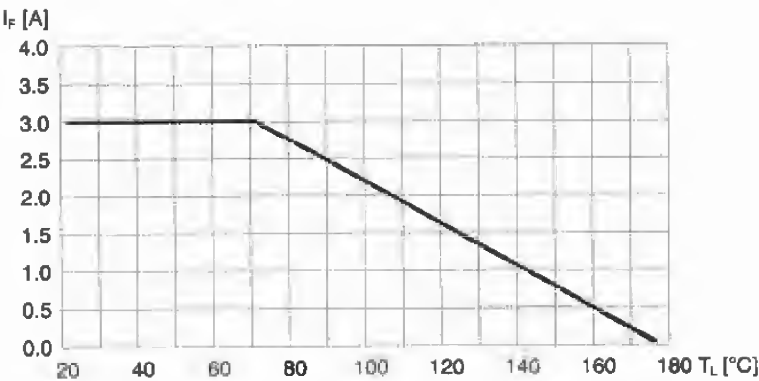


Fig. 2 – Forward derating curve





3 A Glass Rectifier

50 to 1000 V

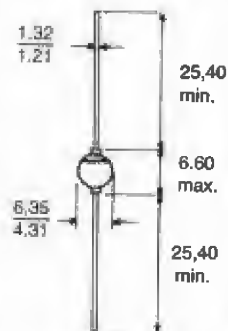
G3
Series

VOLTAGE RATINGS

Type	Maximum Forward Voltage at 3.0 A _{DC}	Maximum RMS Voltage	Maximum Recurrent Peak Reverse Voltage
G3A	1.2 V	35 V	50 V
G3B	1.2 V	70 V	100 V
G3D	1.1 V	140 V	200 V
G3G	1.1 V	280 V	400 V
G3J	1.1 V	420 V	600 V
G3K	1.1 V	560 V	800 V
G3M	1.1 V	700 V	1000 V

CASE OUTLINE

GPR-3



MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature and 10 mm lead length unless otherwise specified.
Single-phase, half-wave, 50 Hz, resistive or inductive load.

Maximum Average Forward Rectified Current	3 A
Peak Forward Surge Current, 10 ms Single Half Sine Wave	125 A
Maximum Reverse Current at 25°C	1 μ A
Maximum Reverse Current at 100°C	100 μ A
Typical Reverse Recovery Time – Measured with $I_F = 0.5$ A, $I_R = 1.0$ A, $i_{rr} = 0.25$ A	3 μ s
Typical Junction Capacitance at 1.0 MHz and Reverse Voltage of 4.0 V _{DC}	30 pF
Typical Thermal Resistance	25°C/W
Operating Temperature Range	-65 to +175°C
Storage Temperature Range	-65 to +300°C

RATING AND CHARACTERISTIC CURVES

Fig. 1 – Typical forward characteristic

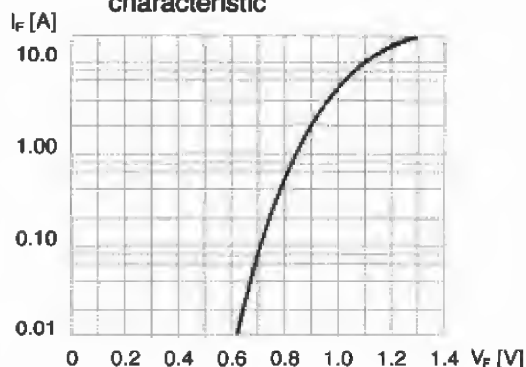
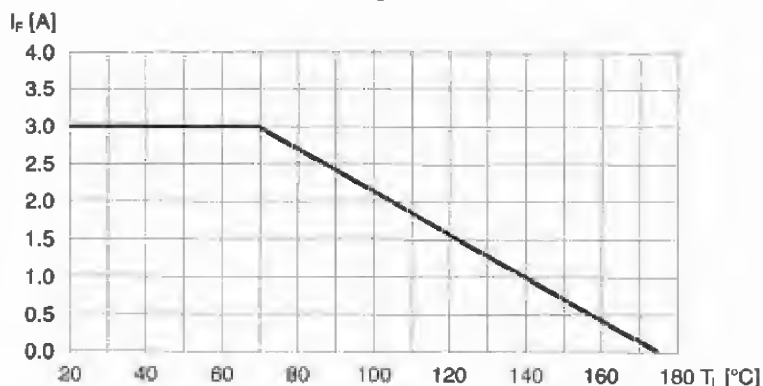


Fig. 2 – Forward derating curve





1 A Glass Rectifier

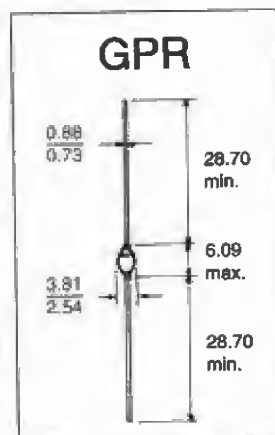
200 to 1000 V / Fast Recovery

1N4942
thru
1N4948

VOLTAGE AND REVERSE RECOVERY RATINGS

Type	Maximum Reverse Recovery Time $I_F = .5 \text{ A}$, $I_R = 1 \text{ A}$, $i_{rr} = .25 \text{ A}$	Maximum Recurrent Peak Reverse Voltage
1N4942	150 ns	200 V
1N4943	150 ns	300 V
1N4944	150 ns	400 V
1N4945	150 ns	500 V
1N4946	150 ns	600 V
1N4947	250 ns	800 V
1N4948	500 ns	1000 V

CASE OUTLINE



MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature and 10 mm lead length unless otherwise specified.
Single-phase, half-wave, 50 Hz, resistive or inductive load.

Maximum Average Forward Rectified Current	1 A
Peak Forward Surge Current, 10 ms Single Half Sine Wave	30 A
Maximum Forward Voltage at 1 A _{DC}	1.3 V
Maximum Reverse Current at 25°C	1.0 μA
Maximum Reverse Current at 100°C	100 μA
Typical Junction Capacitance at 1.0 MHz and Reverse Voltage of 4.0 V _{DC}	20 pF
Typical Thermal Resistance	50°C/W
Operating Temperature Range	-65 to +175°C
Storage Temperature Range	-65 to +200°C

RATING AND CHARACTERISTIC CURVES

Fig. 1 — Typical forward characteristic

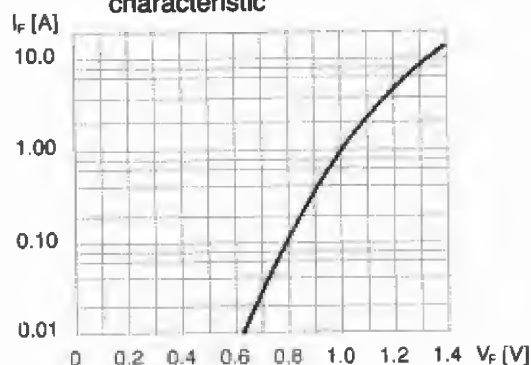
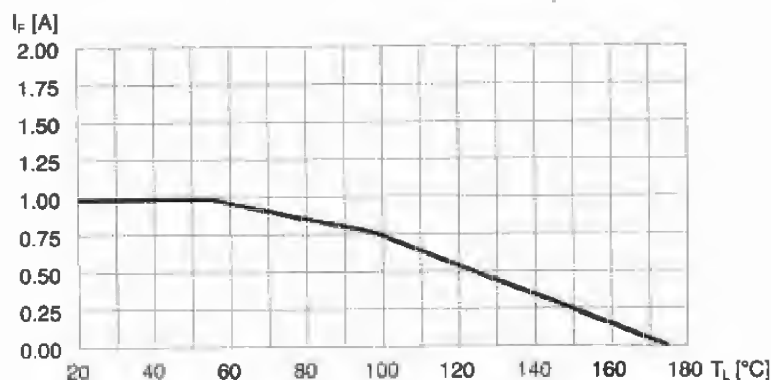


Fig. 2 — Forward derating curve





1 A Glass Rectifier

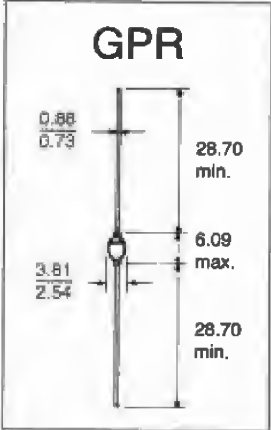
200 to 1000 V

1N5614
even thru
1N5622

VOLTAGE RATINGS

Type	Maximum RMS Voltage	Maximum Recurrent Peak Reverse Voltage
1N5614	140 V	200 V
1N5616	280 V	400 V
1N5618	420 V	600 V
1N5620	560 V	800 V
1N5622	700 V	1000 V

CASE OUTLINE



MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature and 10 mm lead length unless otherwise specified.
Single-phase, half-wave, 50 Hz, resistive or inductive load.

Maximum Average Forward Rectified Current	1 A
Peak Forward Surge Current, 10 ms Single Half Sine Wave	50 A
Maximum Forward Voltage at 1.0 A _{DC}	1.2 V
Maximum Reverse Current at 25°C	0.5 μA
Maximum Reverse Current at 100°C	25 μA
Typical Reverse Recovery Time – Measured with I _F = 0.5 A, I _R = 1.0 A, i _{rr} = 0.25 A	2 μs
Typical Junction Capacitance at 1.0 MHz and Reverse Voltage of 12.0 V _{DC}	20 pF
Typical Thermal Resistance	50°C/W
Operating Temperature Range	–193 to +200°C
Storage Temperature Range	–193 to +200°C

RATING AND CHARACTERISTIC CURVES

Fig. 1 – Typical forward characteristic

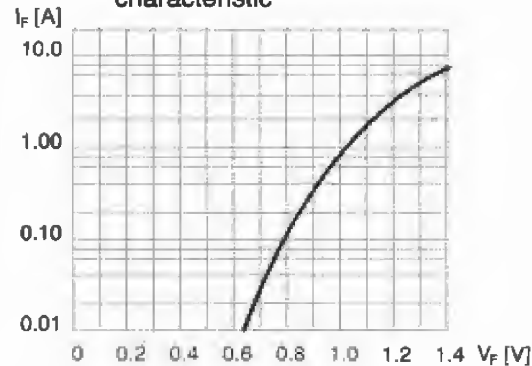
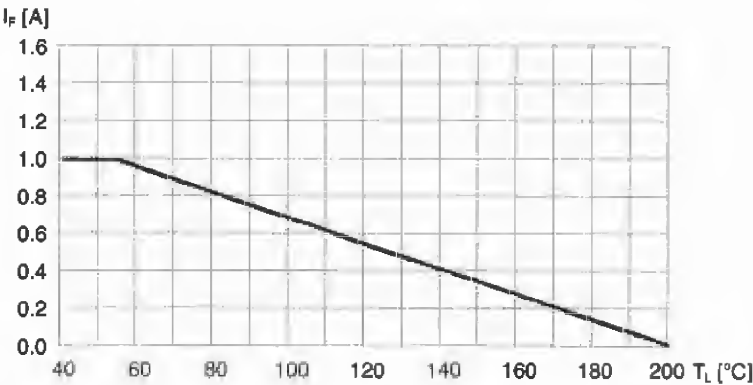


Fig. 2 – Forward derating curve





1 A Glass Rectifier

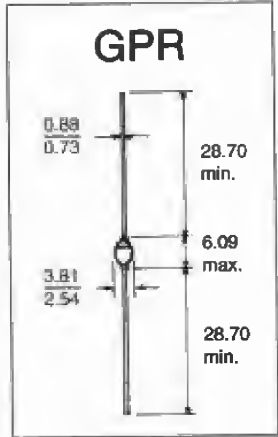
200 to 1000 V / Fast Recovery

1N5615
odd thru
1N5623

VOLTAGE AND REVERSE RECOVERY RATINGS

Type	Maximum Reverse Recovery Time $I_F = .5\text{ A}$, $I_R = 1\text{ A}$, $t_{rr} = .25\text{ A}$	Maximum Recurrent Peak Reverse Voltage
1N5615	150 ns	200 V
1N5617	150 ns	400 V
1N5619	250 ns	600 V
1N5621	300 ns	800 V
1N5623	500 ns	1000 V

CASE OUTLINE



MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature and 10 mm lead length unless otherwise specified.
Single-phase, half-wave, 50 Hz, resistive or inductive load.

Maximum Average Forward Rectified Current	1 A
Peak Forward Surge Current, 10 ms Single Half Sine Wave	50 A
Maximum Forward Voltage at 1.0 A _{DC}	1.2 V
Maximum Reverse Current at 25°C	0.5 μA
Maximum Reverse Current at 100°C	25 μA
Typical Junction Capacitance at 1.0 MHz and Reverse Voltage of 4.0 V _{DC}	20 pF
Typical Thermal Resistance	50°C/W
Operating Temperature Range	−193 to +200°C
Storage Temperature Range	−193 to +200°C

RATING AND CHARACTERISTIC CURVES

Fig. 1 – Typical forward characteristic

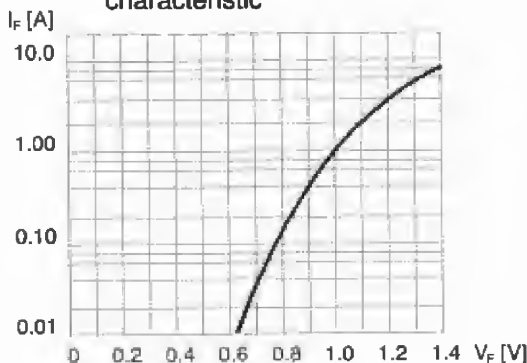
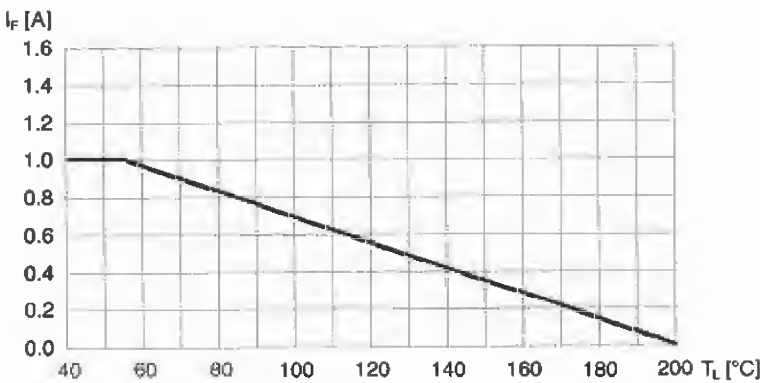


Fig. 2 – Forward derating curve





1 A Glass Rectifier

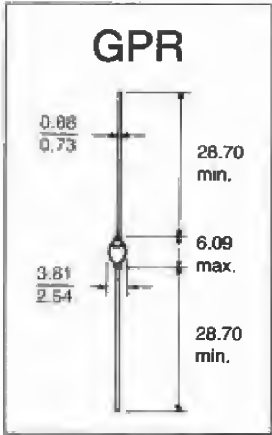
50 to 1000 V / Fast Recovery

RG1
Series

VOLTAGE AND REVERSE RECOVERY RATINGS

Type	Maximum Reverse Recovery Time $I_F = .5\text{ A}$, $I_R = 1\text{ A}$, $t_{rr} = .25\text{ A}$	Maximum Recurrent Peak Reverse Voltage
RG1A	150 ns	50 V
RG1B	150 ns	100 V
RG1D	150 ns	200 V
RG1G	150 ns	400 V
RG1J	150 ns	600 V
RG1K	250 ns	800 V
RG1M	500 ns	1000 V

CASE OUTLINE



MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature and 10 mm lead length unless otherwise specified.
Single-phase, half-wave, 50 Hz, resistive or inductive load.

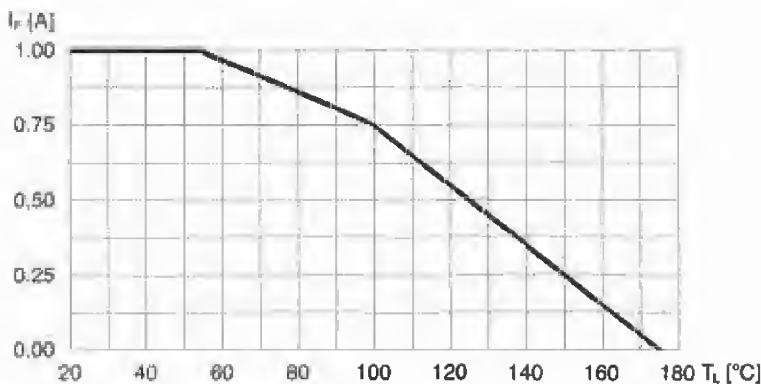
Maximum Average Forward Rectified Current	1 A
Peak Forward Surge Current, 10 ms Single Half Sine Wave	30 A
Maximum Forward Voltage at 1.0 A _{DC}	1.3 V
Maximum Reverse Current at 25°C	1.0 μA
Maximum Reverse Current at 100°C	100 μA
Typical Junction Capacitance at 1.0 MHz and Reverse Voltage of 4.0 V _{DC}	20 pF
Typical Thermal Resistance	50°C/W
Operating Temperature Range	-65 to +175°C
Storage Temperature Range	-65 to +300°C

RATING AND CHARACTERISTIC CURVES

Fig. 1 — Typical forward characteristic



Fig. 2 — Forward derating curve





3 A Glass Rectifier

50 to 1000 V / Fast Recovery

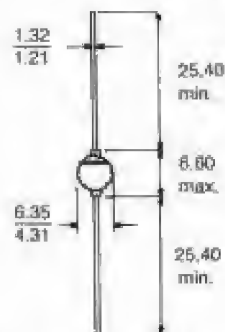
RG3
Series

VOLTAGE AND REVERSE RECOVERY RATINGS

CASE OUTLINE

Type	Maximum Reverse Recovery Time $I_F = .5 \text{ A}$, $I_R = 1 \text{ A}$, $t_{rr} = .25 \text{ A}$	Maximum Recurrent Peak Reverse Voltage
RG3A	150 ns	50 V
RG3B	150 ns	100 V
RG3D	150 ns	200 V
RG3G	150 ns	400 V
RG3J	150 ns	600 V
RG3K	250 ns	800 V
RG3M	500 ns	1000 V

GPR-3



MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature and 10 mm lead length unless otherwise specified.
Single-phase, half-wave, 50 Hz, resistive or inductive load.

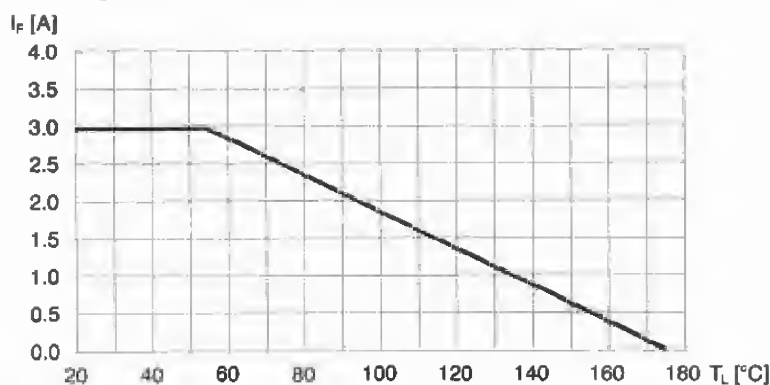
Maximum Average Forward Rectified Current	3 A
Peak Forward Surge Current, 10 ms Single Half Sine Wave	100 A
Maximum Forward Voltage at 3.0 A _{DC}	1.3 V
Maximum Reverse Current at 25°C	2.0 μA
Maximum Reverse Current at 100°C	100 μA
Typical Junction Capacitance at 1.0 MHz and Reverse Voltage of 4.0 V _{DC}	35 pF
Typical Thermal Resistance	25°C/W
Operating Temperature Range	-65 to +175°C
Storage Temperature Range	-65 to +300°C

RATING AND CHARACTERISTIC CURVES

Fig. 1 — Typical forward characteristic



Fig. 2 — Forward derating curve





1.5 A Glass Rectifier

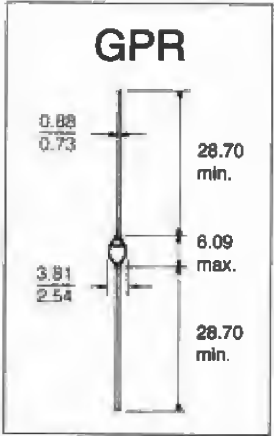
Clamper/Damper

CG1
DG1

VOLTAGE AND RECOVERY RATINGS

Type	Typical Forward Recovery Voltage	Maximum Reverse Recovery Time	Maximum Recurrent Peak Reverse Voltage
CG1	30 V	15 μ s	1400 V
DG1	25 V	20 μ s	1400 V

CASE OUTLINE



MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature and 10 mm lead length unless otherwise specified.
Single-phase, half-wave, 50 Hz, resistive or inductive load.

Maximum Average Forward Rectified Current	1.5 A
Peak Forward Surge Current, 10 ms Single Half Sine Wave	50 A
Maximum Reverse Current at 25°C	5.0 μ A
Maximum Reverse Current at 125°C	100 μ A
Typical Thermal Resistance	50°C/W
Operating Temperature Range	-65 to +125°C
Storage Temperature Range	-65 to +200°C

RATING AND CHARACTERISTIC CURVES

Fig. 1 – Typical forward characteristic

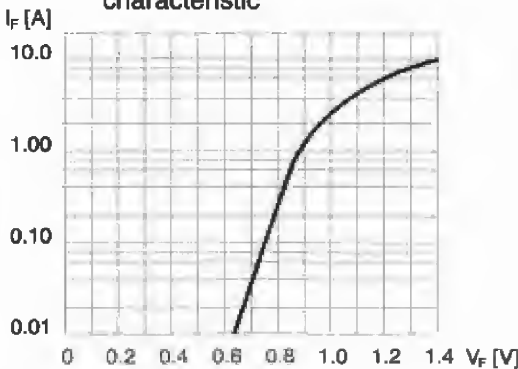
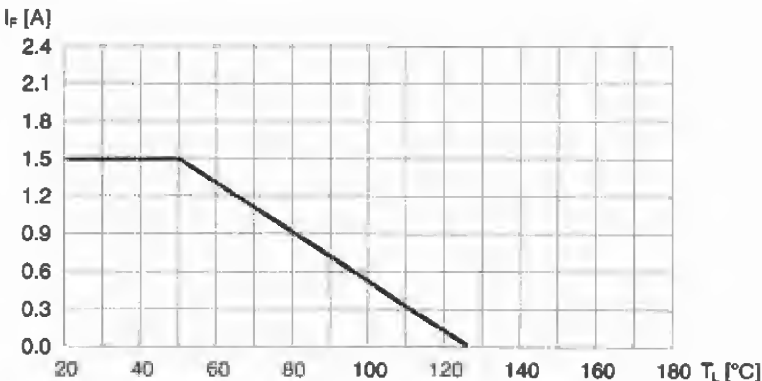


Fig. 2 – Forward derating curve





1.5 A Glass Rectifier

1500 V

BY228

VOLTAGE RATINGS

Type

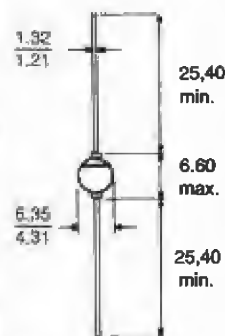
BY228

Maximum Recurrent
Peak Reverse Voltage

1500 V

CASE OUTLINE

GPR-3



MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature and 10 mm lead length unless otherwise specified.
Single-phase, half-wave, 50 Hz, resistive or inductive load.

Maximum Average Forward Rectified Current	2.5 A
Peak Forward Surge Current, 10 ms Single Half Sine Wave	100 A
Maximum Forward Voltage at 5 A _{DC}	1.5 V
Maximum Reverse Current at 25°C	5 μA
Maximum Reverse Current at 125°C	200 μA
Maximum Reverse Recovery Time	20 μs
Typical Thermal Resistance	25 °C/W
Operating Temperature Range	-65 to +140°C
Storage Temperature Range	-65 to +200°C

RATING AND CHARACTERISTIC CURVES

Fig. 1 – Typical forward characteristic

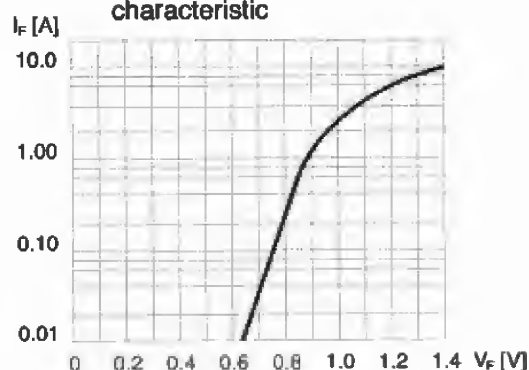
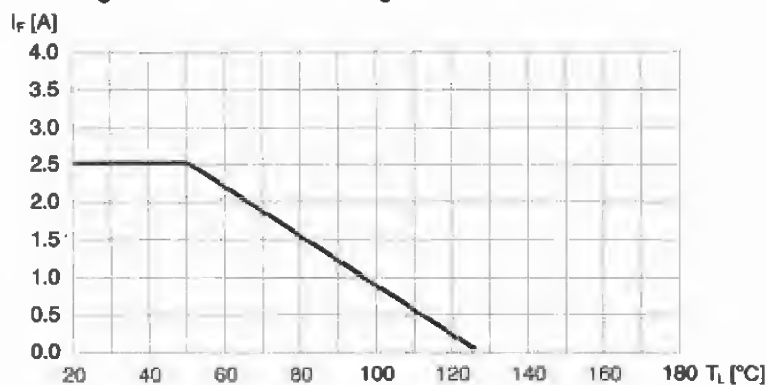


Fig. 2 – Forward derating curve





HV Glass Rectifier

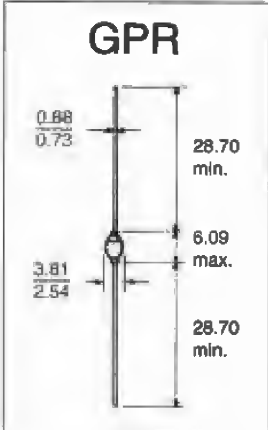
2000 to 5000 V

HVG
Series

VOLTAGE RATINGS

Type	Maximum Forward Voltage at 0.1 A _{DC}	Maximum Recurrent Peak Reverse Voltage
HVG2	3.0 V	2000 V
HVG3	4.0 V	3000 V
HVG4	6.0 V	4000 V
HVG5	8.0 V	5000 V

CASE OUTLINE



MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature and 10 mm lead length unless otherwise specified.
Single-phase, half-wave, 50 Hz, resistive or inductive load.

Maximum Average Forward Rectified Current	0.3 to 0.15 A
Peak Forward Surge Current, 10 ms Single Half Sine Wave	25 to 8 A
Maximum Reverse Current at 25°C	5 μA
Maximum Reverse Current at 100°C	25 μA
Typical Thermal Resistance	50 °C/W
Operating Temperature Range	-65 to +150°C
Storage Temperature Range	-65 to +200°C

RATING AND CHARACTERISTIC CURVES

Fig. 1 — Typical forward characteristic

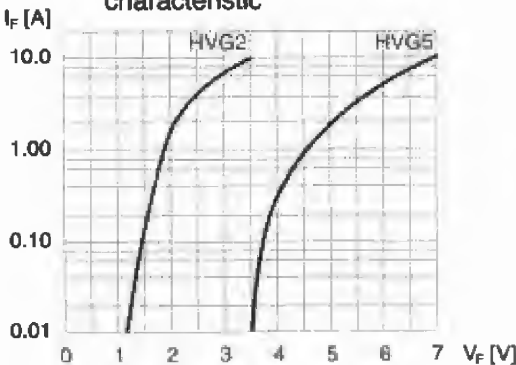
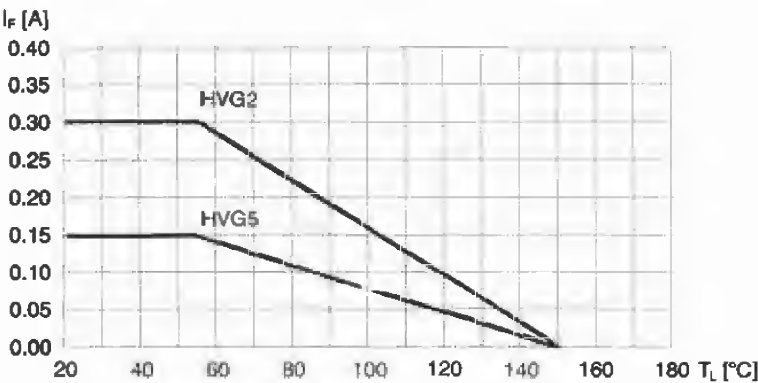


Fig. 2 — Forward derating curve





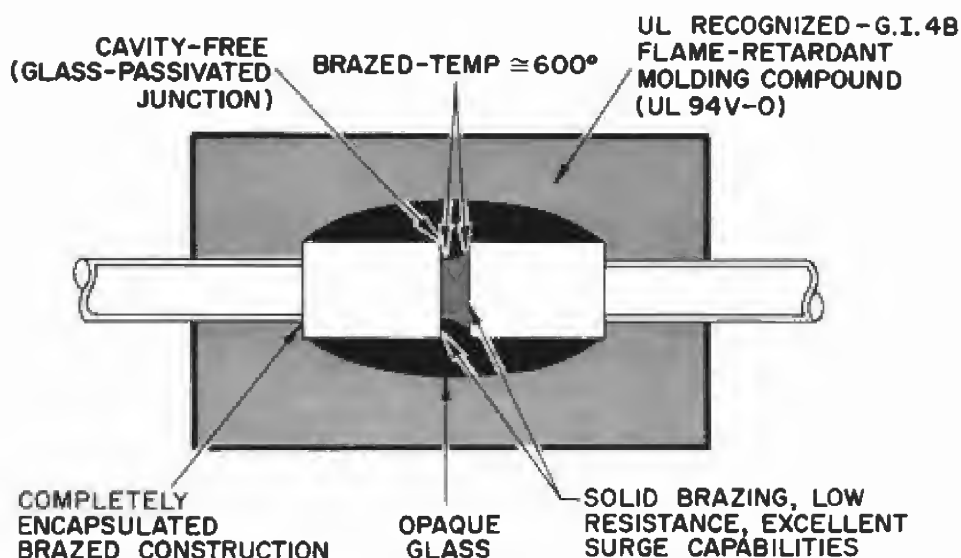
LIST OF APPROVED JAN-JANTX DEVICES

Unit	Package		JANTX AVAILABLE	Package
	GPR	GPD		
1N483B 1N485B 1N486B 1N645 1N647 1N649 1N645-1 1N647-1 1N649-1 1N3611 1N3612 1N3613 1N3614 1N3957 1N4245 1N4246 1N4247 1N4248 1N4249 1N4942 1N4944 1N4946 1N4947 1N4948 1N5624* 1N5625* 1N5626* 1N5627*	 			

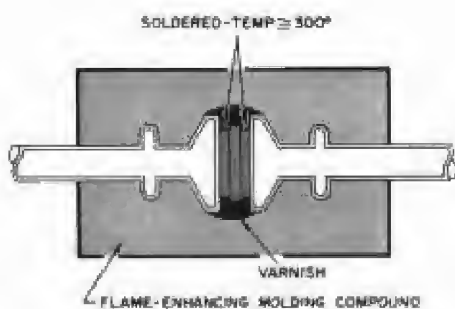
Environmental test conditions and further information see page 107.

GRAPHIC REPRESENTATION OF SUPERECTIFIER'S SUPERIORITY

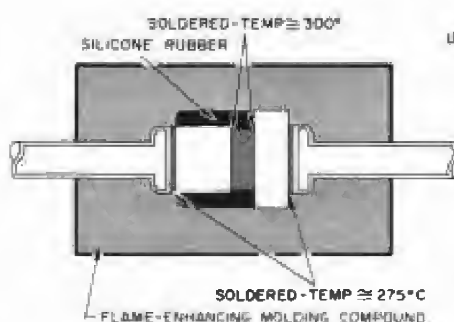
GI SUPERECTIFIER



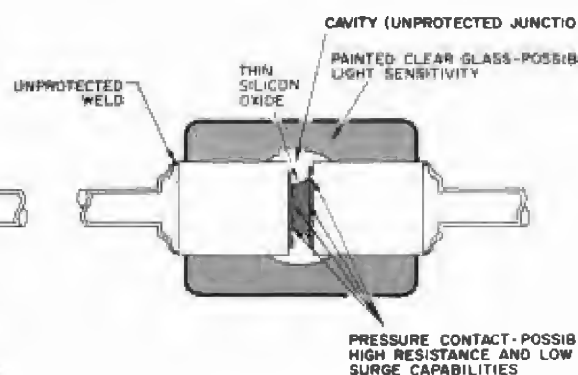
DOUBLE NAIL HEAD



DOUBLE SLUG



DOUBLE PLUG





Superectifier

0.4 to 3 Amperes

50 V
to
1600 V

Introduction

No other 1 to 3 Amp rectifier – plastic, glass, or metal – can match (or even approach) SUPERECTIFIER's combination of features ... the result of General Instrument's unique glass-plastic construction:

- Brazed at greater than 600°C at both leads and cell – eliminates all soft solders
- Exclusive UL recognized *flame-retardant* epoxy molding compound rated 94V-0, the highest available
- Patented glass passivation
- Reliability proved equal to military requirements
- Hermetically sealed construction
- Cost effective construction

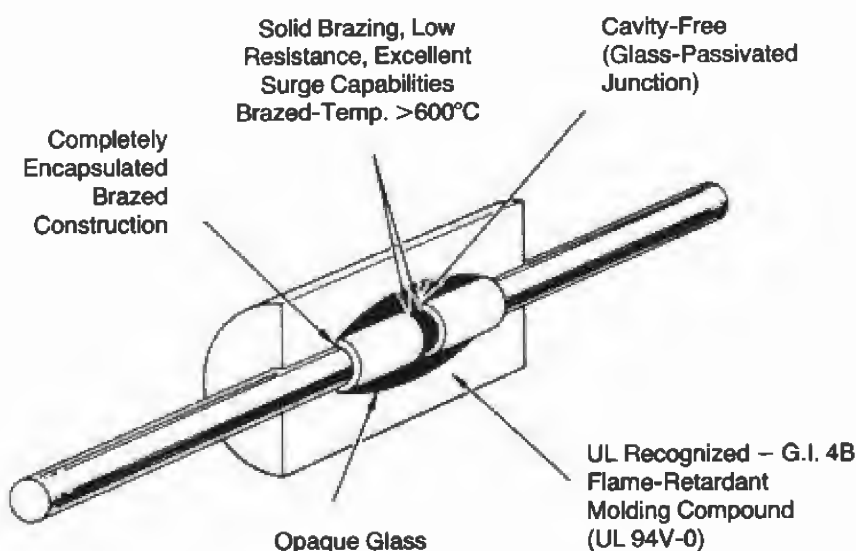
General instrument's SUPERECTIFIER is exactly that ... a super rectifier. There is nothing else in the world like it.

In cell construction, most other rectifiers rated up to 3 Amps are soft soldered or are only pressure contacted. SUPERECTIFIER is made into an entirely solid unit with its leads and cell brazed at temperatures greater than 600°C. All other rectifiers fail at half that temperature.

In cell protection, conventional plastic rectifiers use either varnish, silicon rubber or a thin film of silicon oxide to protect the junction. SUPERECTIFIER uses a patented glass passivation to seal its junction hermetically.

In device encapsulation, again SUPERECTIFIER is the only one that won't go up in flames. It is one of the few rectifier using an exclusive flame-RETARDANT molding compound, rated UL 94V-0, the highest rating available. Other plastic rectifiers use flame-ENHANCING compounds. Here again, SUPERECTIFIER's superiority is manifest. With this construction it exceeds environmental standards of MIL-STD-19500/228.

In summary, SUPERECTIFIER is the world's only rectifier with totally brazed construction, with a patented glass passivated junction, and with flame-retardant molding encapsulation.



**Glass Passivated Junction Plastic Rectifiers 0.4 to 1.75 AMP**

Types: 1N645GP thru 1N649GP
1N3611GP thru 1N3614GP
1N4001GP thru 1N4007GP
1N4245GP thru 1N4249GP
1N5059GP thru 1N5062GP
1N5391GP thru 1N5399GP
GP10A thru GP10M
GP15A thru GP15M
BY126GP and BY127GP
BY226GP and BY227GP
BY133GP thru BY135GP

Features:

- High Temperature Metallurgically Bonded
- Plastic Package has Underwriters Laboratory Classification 94V-0
- Glass Passivated Junction
- No Thermal Runaway
- Exceeds Environmental Standards of MIL-STD-19500/228
- High Temperature Soldering Guaranteed 350°C / 10 Second / 10 mm Lead Length at 2.25 kg Tension
- Tin Plated Axial Leads, Solderable per MIL-STD-202/208

Glass Passivated Junction Plastic Rectifiers 2 to 3 AMP

Types: 1N5624GP thru 1N5627GP
GP20A thru GP20M
GP30A thru GP30M

Features:

- High Temperature Metallurgically Bonded
- Plastic Package has Underwriters Laboratory Classification 94V-0
- Glass Passivated Junction in DO 27 Package
- 2.0 Ampere (GP20) and 3.0 Ampere Operation (GP30) at 55°C Ambient Temperature with no Thermal Runaway
- Typical I_R less than 1 μ A
- Exceeds Environmental Standards of MIL-STD-19500/228
- Tin Plated Axial Leads, Solderable per MIL-STD-202/208
- High Temperature Soldering Guaranteed 350°C / 10 Second / 10 mm Lead Length at 2.25 kg Tension

Glass Passivated Junction Plastic Fast Recovery Rectifiers 0.4 to 3 AMP

Types: 1N4942GP thru 1N4948GP
 RGP01-10 thru RGP01-16
 RGP10A thru RGP10M
 RGP15A thru RGP15M
 RGP30A thru RGP30M
 BA157GP thru BA159GP
 BY206GP and BY207GP

- Features:
- High Temperature Metallurgically Bonded
 - High Rectification Efficiency to 100 kHz
 - No Thermal Runaway
 - Exceeds Environmental Standards of MIL-STD-19500/228
 - Includes all Advantages of the SUPERECTIFIER Design
 - Tin Plated Axial Leads, Solderable per MIL-STD-202/208

Glass Passivated Junction Plastic Controlled Avalanche Rectifiers 1.5 AMP

Type: AGP15-200 thru AGP15-800

- Features:
- High Capability for Absorption of Peak Reverse Power
 - Designed for Rectifier Applications where Inductive Loads may be switched on and off periodically
 - All Advantages of the SUPERECTIFIER Design
 - Tin Plated Axial Leads, Solderable per MIL-STD-202/208

Glass Passivated Junction Plastic Zener Rectiflers 160 to 200 VOLTS

Types: ZGP10-160 thru ZGP10-200

- Features:
- Reliable SUPERECTIFIER Construction
 - Zener Voltages available in 5 %, 10 % and 20 % Tolerances
 - High Capability for Absorption of Peak Reverse Power
 - Tin Plated Axial Leads, Solderable per MIL-STD-202/208



QUICK GUIDE TO SUPERECTIFIERS

TYPE	1N645GP thru 1N649GP	BY206GP* thru BY207GP*	BA157GP* thru BA159GP*	GP10A thru GP10M	1N3611GP thru 1N3614GP	1N4001GP thru 1N4007GP	1N4245GP thru 1N4249GP	1N4942GP* thru 1N4948GP*	RGP10A* thru RGP10M*	BY133GP thru BY135GP	1N5059GP thru 1N5062GP
CASE	DO41	DO41	DO41	DO41	DO41	DO41	DO41	DO41	DO41	DO15	DO15
I _o (A)	0.4	0.4	0.5	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
@T _A (°C)	25	55	55	55	100	75	55	55	55	75	55
V _R = 50 (V)				GP10A		1N4001GP			RGP10A		
V _R = 100 (V)				GP10B		1N4002GP			RGP10B		
V _R = 200 (V)	1N645GP			GP10D	1N3611GP	1N4003GP	1N4245GP	1N4942GP	RGP10D	BY135GP	1N5059GP
V _R = 300 (V)	1N646GP							1N4943GP			
V _R = 400 (V)	1N647GP	BY206GP	BA157GP	GP10G	1N3612GP	1N4004GP	1N4246GP	1N4944GP	RGP10G		1N5060GP
V _R = 500 (V)	1N648GP							1N4945GP			
V _R = 600 (V)	1N649GP	BY207GP	BA158GP	GP10J	1N3613GP	1N4005GP	1N4247GP	1N4946GP	RGP10J	BY134GP	1N5061GP
V _R = 800 (V)			BA159DGP	GP10K	1N3614GP	1N4006GP	1N4248GP	1N4947GP	RGP10K		1N5062GP
V _R = 1000 (V)			BA159GP	GP10M	1N3957GP	1N4007GP	1N4249GP	1N4948GP	RGP10M		
V _R > 1000 (V)										BY133GP	
SURGE (A)	20	15	20	30	30	30	25	30	30	50	50
V _F (V)	1.2	1.3	1.3	1.1	1.1	1.1	1.2	1.3	1.3	1.2	1.2
Page	55	70	71	59	56	57	58	72	73	61	60



QUICK GUIDE TO SUPERECTIFIERS

TYPE	AGP15-200 thru AGP15-800	GP15A thru GP15M	1N5391GP thru 1N5399GP	RGP15A* thru RGP15M*	BY126GP thru BY127GP	BY226GP thru BY227GP	GP20A thru GP20M	1N5624GP thru 1N5627GP	GP30A thru GP30M	RGP30A* thru RGP30M*
CASE	DO15	DO15	DO15	DO15	DO27	DO27	DO27	DO27A	DO27A	DO27A
I _o (A)	1.5	1.5	1.5	1.5	1.5	1.75	2.0	3.0	3.0	3.0
@T _A (°C)	55	55	70	55	55	55	55	70	55	55
V _R = 50 (V)		GP15A	1N5391GP	RGP15A			GP20A		GP30A	RGP30A
V _R = 100 (V)		GP15B	1N5392GP	RGP15B			GP20B		GP30B	RGP30B
V _R = 200 (V)	AGP15-200	GP15D	1N5393GP	RGP15D			GP20D	1N5624GP	GP30D	RGP30D
V _R = 300 (V)			1N5394GP							
V _R = 400 (V)	AGP15-400	GP15G	1N5395GP	RGP15G			GP20G	1N5625GP	GP30G	RGP30G
V _R = 500 (V)			1N5396GP							
V _R = 600 (V)	AGP15-600	GP15J	1N5397GP	RGP15J	BY126GP	BY226GP	GP20J	1N5626GP	GP30J	RGP30J
V _R = 800 (V)	AGP15-800	GP15K	1N5398GP	RGP15K			GP20K	1N5627GP	GP30K	RGP30K
V _R = 1000 (V)		GP15M	1N5399GP	RGP15M			GP20M		GP30M	RGP30M
V _R > 1000 (V)					BY127GP	BY227GP				
SURGE (A)	50	50	50	50	50	60	65	125	125	125
V _F (V)	1.2	1.1	1.4	1.3	1.3	1.3	1.1	1.0	1.1	1.3
Page	76	63	62	74	64	65	66	67	68	75

* Fast Recovery



0.4 A Superectifier

225 to 600 V

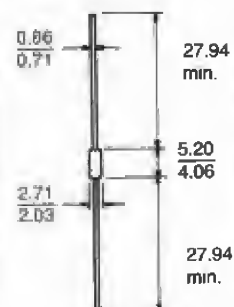
1N645GP
thru
1N649GP

VOLTAGE RATINGS

Type	Maximum Recurrent Peak Reverse Voltage
1N645GP	225 V
1N646GP	300 V
1N647GP	400 V
1N648GP	500 V
1N649GP	600 V

CASE OUTLINE

DO-41



MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature and 10 mm lead length unless otherwise specified.
Single-phase, half-wave, 50 Hz, resistive or inductive load.

Maximum Average Forward Rectified Current	400 mA
Peak Forward Surge Current, 10 ms Single Half Sine Wave	20 A
Maximum Forward Voltage at 0.4 A _{DC}	1.2 V
Maximum Reverse Current at 25°C	0.5 μA
Maximum Reverse Current at 150°C	25 μA
Typical Reverse Recovery Time – Measured with I _F = 20 mA, i _{rr} = 1 mA	20 μs
Typical Junction Capacitance at 1.0 MHz and Reverse Voltage of 4.0 V _{DC}	15 pF
Typical Thermal Resistance	50°C/W
Operating Temperature Range	–65 to +175°C
Storage Temperature Range	–65 to +175°C

RATING AND CHARACTERISTIC CURVES



Fig. 1 – Typical forward characteristic

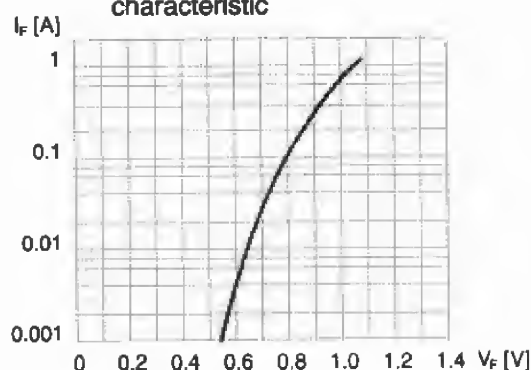
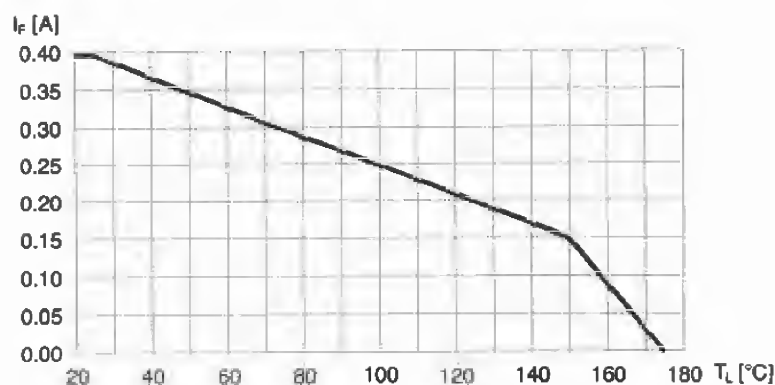


Fig. 2 – Forward derating curve





1 A Superelectifier

200 to 1000 V

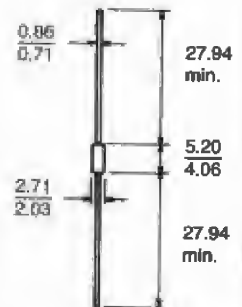
1N3611GP
1N3612GP
1N3613GP
1N3614GP
1N3957GP

VOLTAGE RATINGS

Type	Maximum RMS Voltage	Maximum Recurrent Peak Reverse Voltage
1N3611GP	140 V	200 V
1N3612GP	280 V	400 V
1N3613GP	420V	600 V
1N3614GP	560 V	800 V
1N3957GP	700 V	1000 V

CASE OUTLINE

DO-41



MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature and 10 mm lead length unless otherwise specified.
Single-phase, half-wave, 50 Hz, resistive or inductive load.

Maximum Average Forward Rectified Current	1 A
Peak Forward Surge Current, 10 ms Single Half Sine Wave	30 A
Maximum Forward Voltage at 1.0 A _{DC}	1.0 V
Maximum Reverse Current at 25°C	1.0 μA
Maximum Reverse Current at 150°C	300 μA
Typical Reverse Recovery Time – Measured with I _F = 20 mA, i _{rr} = 1 mA	20 μs
Typical Junction Capacitance at 1.0 MHz and Reverse Voltage of 4.0 V _{DC}	15 pF
Typical Thermal Resistance	50°C/W
Operating Temperature Range	–65 to +175°C
Storage Temperature Range	–65 to +175°C

RATING AND CHARACTERISTIC CURVES



Fig. 1 – Typical forward characteristic

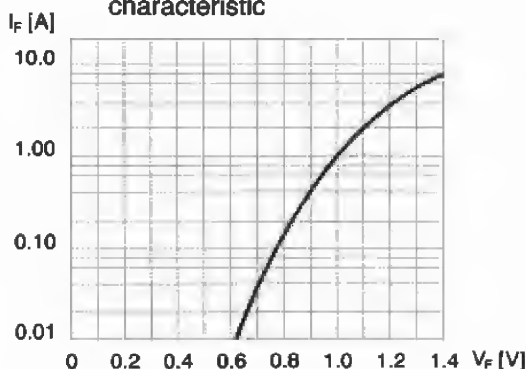
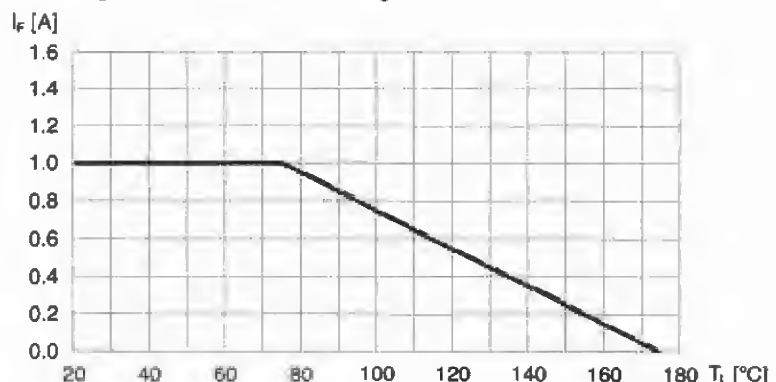


Fig. 2 – Forward derating curve





1 A Superrectifier

50 to 1000 V

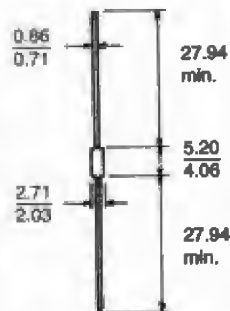
1N4001GP
thru
1N4007GP

VOLTAGE RATINGS

Type	Maximum Forward Voltage at 1.0 A _{DC}	Maximum RMS Voltage	Maximum Recurrent Peak Reverse Voltage
1N4001GP	1.1 V	35 V	50 V
1N4002GP	1.1 V	70 V	100 V
1N4003GP	1.1 V	140 V	200 V
1N4004GP	1.1 V	280 V	400 V
1N4005GP	1.1 V	420 V	600 V
1N4006GP	1.2 V	560 V	800 V
1N4007GP	1.2 V	700 V	1000 V

CASE OUTLINE

DO-41



MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature and 10 mm lead length unless otherwise specified.
Single-phase, half-wave, 50 Hz, resistive or inductive load.

Maximum Average Forward Rectified Current	1 A
Peak Forward Surge Current, 10 ms Single Half Sine Wave	30 A
Maximum Reverse Current at 25°C	5 μ A
Maximum Reverse Current at 125°C	50 μ A
Typical Reverse Recovery Time – Measured with $I_F = 20$ mA, $I_R = 1$ mA	20 μ s
Typical Junction Capacitance at 1.0 MHz and Reverse Voltage of 4.0 V _{DC}	15 pF
Typical Thermal Resistance	50°C/W
Operating Temperature Range	–65 to +175°C
Storage Temperature Range	–65 to +175°C

RATING AND CHARACTERISTIC CURVES



Fig. 1 – Typical forward characteristic

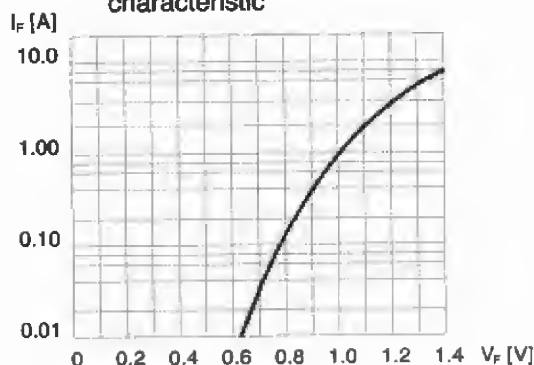
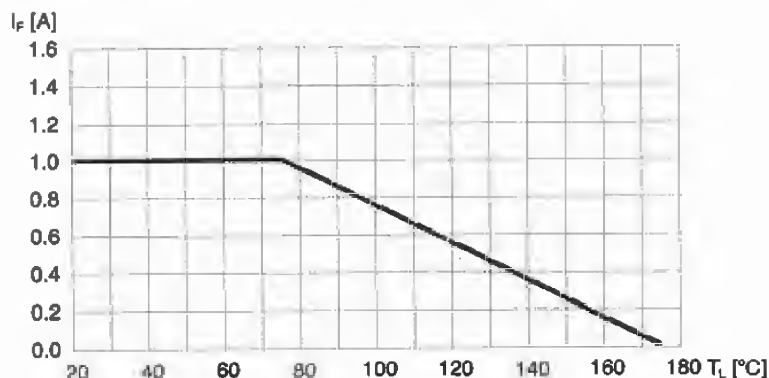


Fig. 2 – Forward derating curve





1 A Superectifier

200 to 1000 V

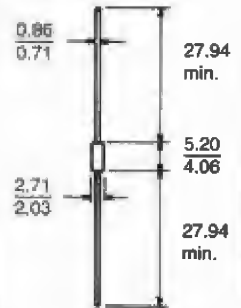
1N4245GP
thru
1N4249GP

VOLTAGE RATINGS

Type	Maximum RMS Voltage	Maximum Recurrent Peak Reverse Voltage
1N4245GP	140 V	200 V
1N4246GP	280 V	400 V
1N4247GP	420 V	600 V
1N4248GP	560 V	800 V
1N4249GP	700 V	1000 V

CASE OUTLINE

DO-41



MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature and 10 mm lead length unless otherwise specified.
Single-phase, half-wave, 50 Hz, resistive or inductive load.

Maximum Average Forward Rectified Current	1.0 A
Peak Forward Surge Current, 10 ms Single Half Sine Wave	25 A
Maximum Forward Voltage at 1.0 A _{DC}	1.2 V
Maximum Reverse Current at 25°C	1.0 μA
Maximum Reverse Current at 125°C	25 μA
Typical Reverse Recovery Time – Measured with I _F = 20 mA, i _{rr} = 1 mA	20 μs
Typical Junction Capacitance at 1.0 MHz and Reverse Voltage of 4.0 V _{DC}	15 pF
Typical Thermal Resistance	50°C/W
Operating Temperature Range	–65 to +175°C
Storage Temperature Range	–65 to +175°C

RATING AND CHARACTERISTIC CURVES



Fig. 1 – Typical forward characteristic

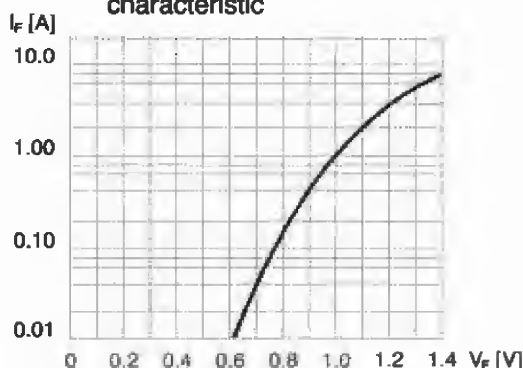
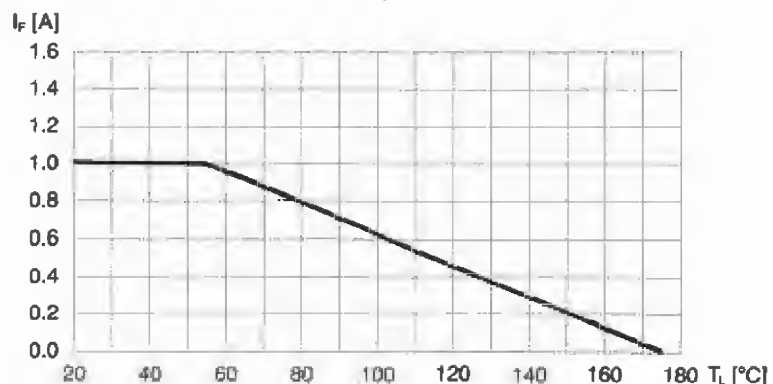


Fig. 2 – Forward derating curve





1 A Superectifier

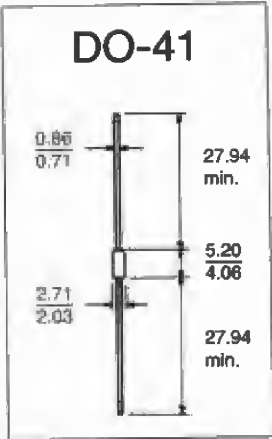
50 to 1000 V

GP10
Series

VOLTAGE RATINGS

Type	Maximum Forward Voltage at 1.0 A _{DC}	Maximum RMS Voltage	Maximum Recurrent Peak Reverse Voltage
GP10A	1.1 V	35 V	50 V
GP10B	1.1 V	70 V	100 V
GP10D	1.1 V	140 V	200 V
GP10G	1.1 V	280 V	400 V
GP10J	1.1 V	420 V	600 V
GP10K	1.2 V	560 V	800 V
GP10M	1.2 V	700 V	1000 V

CASE OUTLINE



MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature and 10 mm lead length unless otherwise specified.
Single-phase, half-wave, 50 Hz, resistive or inductive load.

Maximum Average Forward Rectified Current	1 A
Peak Forward Surge Current, 10 ms Single Half Sine Wave	30 A
Maximum Reverse Current at 25°C	5 µA
Maximum Reverse Current at 55°C	100 µA
Typical Reverse Recovery Time – Measured with I _F = 20 mA, i _{rr} = 1 mA	20 µs
Typical Junction Capacitance at 1.0 MHz and Reverse Voltage of 4.0 V _{DC}	15 pF
Typical Thermal Resistance	50°C/W
Operating Temperature Range	–65 to +175°C
Storage Temperature Range	–65 to +175°C

RATING AND CHARACTERISTIC CURVES



Fig. 1 – Typical forward characteristic

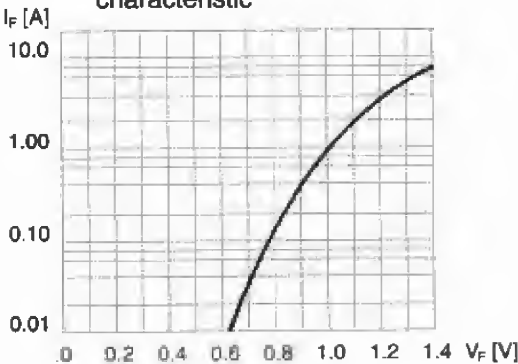
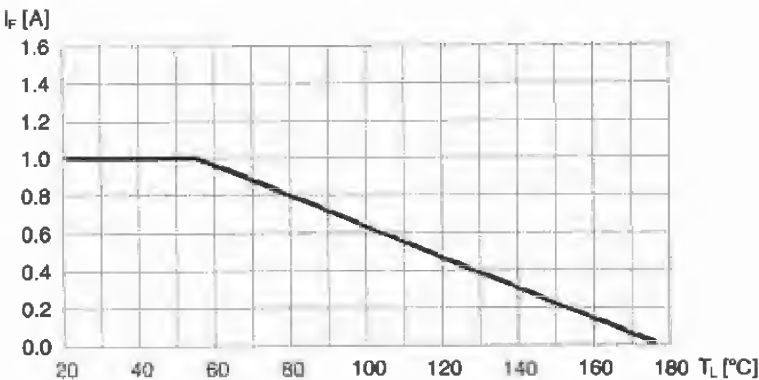


Fig. 2 – Forward derating curve





1 A Superectifier

200 to 800 V

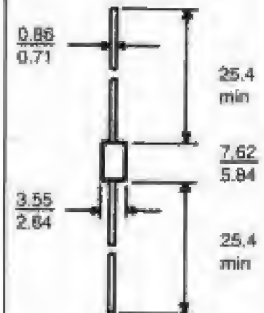
1N5059GP
thru
1N5062GP

VOLTAGE RATINGS

Type	Maximum RMS Voltage	Maximum Recurrent Peak Reverse Voltage
1N5059GP	140 V	200 V
1N5060GP	280 V	400 V
1N5061GP	420 V	600 V
1N5062GP	560 V	800 V

CASE OUTLINE

DO-15



MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature and 10 mm lead length unless otherwise specified.
Single-phase, half-wave, 50 Hz, resistive or inductive load.

Maximum Average Forward Rectified Current	1.0 A
Peak Forward Surge Current, 10 ms Single Half Sine Wave	50 A
Maximum Forward Voltage at 1.0 A _{DC}	1.2 V
Maximum Reverse Current at 25°C	5.0 μA
Maximum Reverse Current at 75°C	100 μA
Typical Reverse Recovery Time — Measured with $I_F = 0.5$ A, $I_R = 1.0$ A, $t_r = 0.25$ A	2 μs
Typical Junction Capacitance at 1.0 MHz and Reverse Voltage of 4.0 V _{DC}	20 pF
Typical Thermal Resistance	40°C/W
Operating Temperature Range	−65 to +175°C
Storage Temperature Range	−65 to +175°C

RATING AND CHARACTERISTIC CURVES



Fig. 1 — Typical forward characteristic

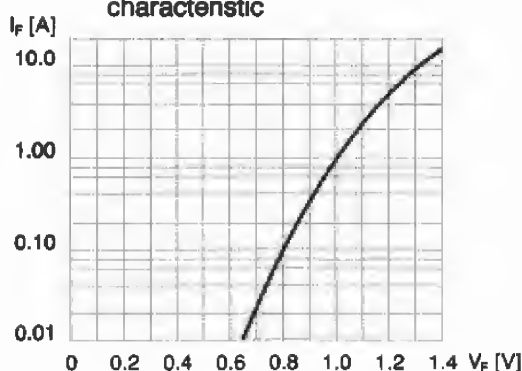
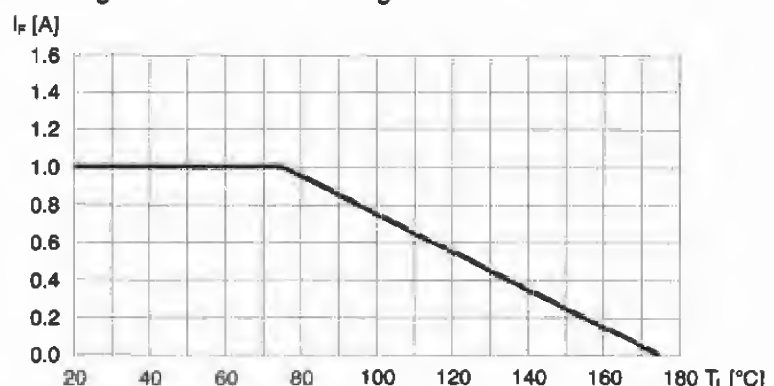


Fig. 2 — Forward derating curve





1 A Superectifier

200 to 1300 V

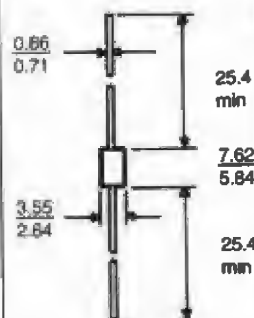
BY133GP
thru
BY135GP

VOLTAGE RATINGS

Type	Maximum RMS Voltage	Maximum Recurrent Peak Reverse Voltage
BY133GP	910 V	1300 V
BY134GP	420 V	600 V
BY135GP	140 V	200 V

CASE OUTLINE

DO-15



MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature and 10 mm lead length unless otherwise specified.
Single-phase, half-wave, 50 Hz, resistive or inductive load.

Maximum Average Forward Rectified Current	1.0 A
Peak Forward Surge Current, 10 ms Single Half Sine Wave	50 A
Maximum Forward Voltage at 2.0 A _{DC}	1.2 V
Maximum Reverse Current at 25°C	5.0 μA
Maximum Reverse Current at 75°C	100 μA
Typical Reverse Recovery Time – Measured with $I_F = 0.5$ A, $I_R = 1.0$ A, $i_{rr} = 0.25$ A	2.5 μs
Typical Junction Capacitance at 1.0 MHz and Reverse Voltage of 4.0 V _{DC}	25 pF
Typical Thermal Resistance	40°C/W
Operating Temperature Range	–65 to +175°C
Storage Temperature Range	–65 to +175°C

RATING AND CHARACTERISTIC CURVES



Fig. 1 — Typical forward characteristic

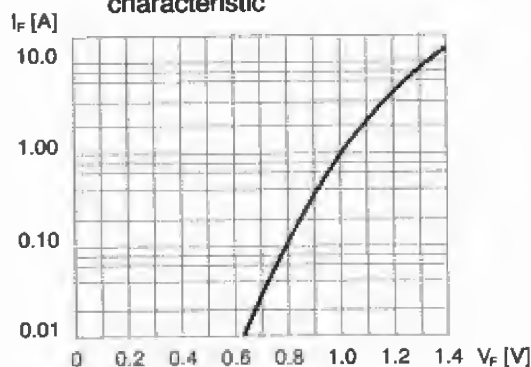
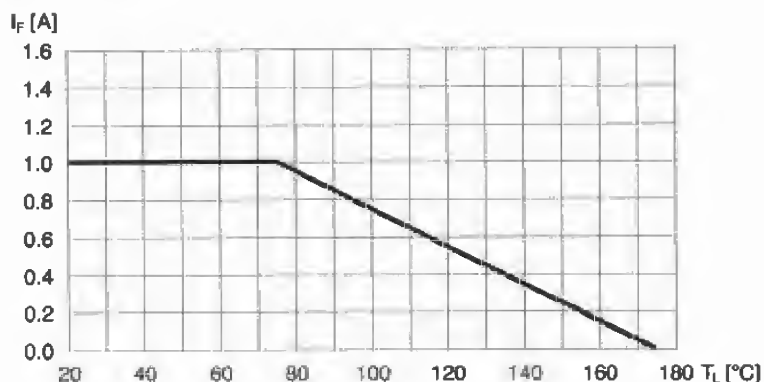


Fig. 2 — Forward derating curve





1,5 A Superectifier

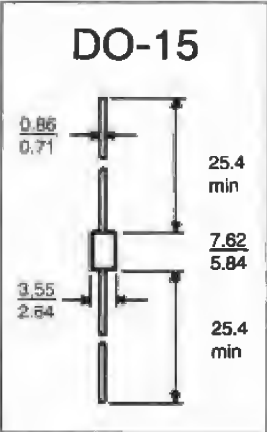
50 to 1000 V

1N5391GP
thru
1N5399GP

VOLTAGE RATINGS

Type	Maximum RMS Voltage	Maximum Recurrent Peak Reverse Voltage
1N5391GP	35 V	50 V
1N5392GP	70 V	100 V
1N5393GP	140 V	200 V
1N5394GP	210 V	300 V
1N5395GP	280 V	400 V
1N5396GP	350 V	500 V
1N5397GP	420 V	600 V
1N5398GP	560 V	800 V
1N5399GP	700 V	1000 V

CASE OUTLINE



MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature and 10 mm lead length unless otherwise specified.
Single-phase, half-wave, 50 Hz, resistive or inductive load.

Maximum Average Forward Rectified Current	1.5 A
Peak Forward Surge Current, 10 ms Single Half Sine Wave	50 A
Maximum Forward Voltage at 1.5 A _{DC}	1.4 V
Maximum Reverse Current at 25°C	5 µA
Maximum Reverse Current at 150°C	300 µA
Typical Reverse Recovery Time – Measured with I _F = 0.5 A, I _R = 1.0 A, i _{rr} = 0.25 A	2 µs
Typical Junction Capacitance at 1.0 MHz and Reverse Voltage of 4.0 V _{DC}	25 pF
Typical Thermal Resistance	40°C/W
Operating Temperature Range	–65 to +175°C
Storage Temperature Range	–65 to +175°C

RATING AND CHARACTERISTIC CURVES



Fig. 1 – Typical forward characteristic

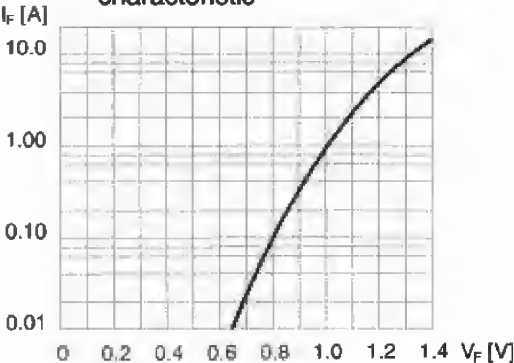
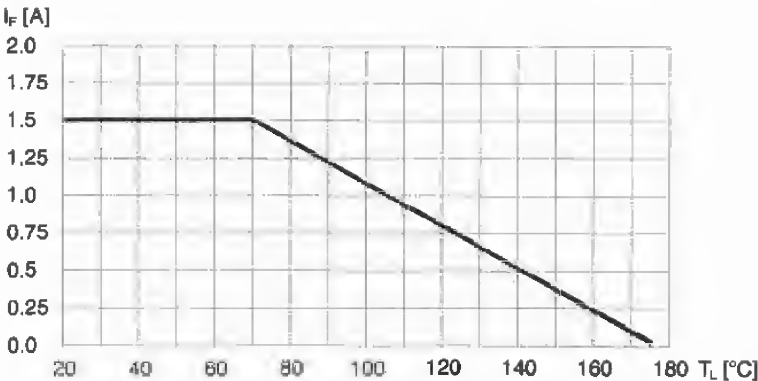


Fig. 2 – Forward derating curve





1,5 A Superrectifier

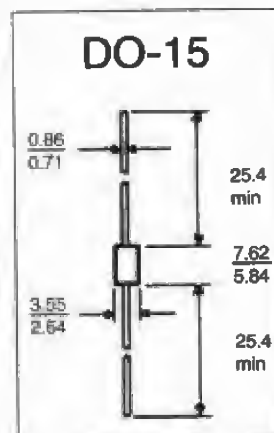
50 to 1000 V

GP15
Series

VOLTAGE RATINGS

Type	Maximum RMS Voltage	Maximum Recurrent Peak Reverse Voltage
GP15A	35 V	50 V
GP15B	70 V	100 V
GP15D	140 V	200 V
GP15G	280 V	400 V
GP15J	420 V	600 V
GP15K	560 V	800 V
GP15M	700 V	1000 V

CASE OUTLINE



MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature and 10 mm lead length unless otherwise specified.
Single-phase, half-wave, 50 Hz, resistive or inductive load.

Maximum Average Forward Rectified Current	1.5 A
Peak Forward Surge Current, 10 ms Single Half Sine Wave	50 A
Maximum Forward Voltage at 1.5 A _{DC}	1.1 V
Maximum Reverse Current at 25°C	5 µA
Maximum Reverse Current at 55°C	100 µA
Typical Reverse Recovery Time — Measured with $I_F = 0.5$ A, $I_R = 1.0$ A, $i_{rr} = 0.25$ A	2 µs
Typical Junction Capacitance at 1.0 MHz and Reverse Voltage of 4.0 V _{DC}	25 pF
Typical Thermal Resistance	40°C/W
Operating Temperature Range	-65 to +175°C
Storage Temperature Range	-65 to +175°C

RATING AND CHARACTERISTIC CURVES



Fig. 1 — Typical forward characteristic

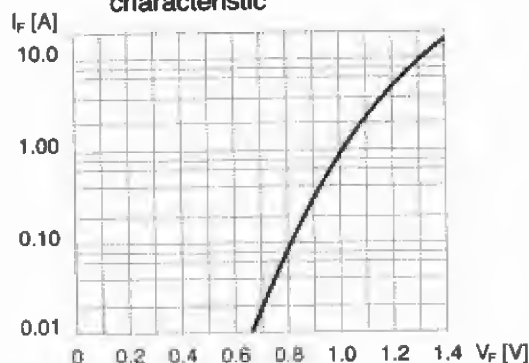
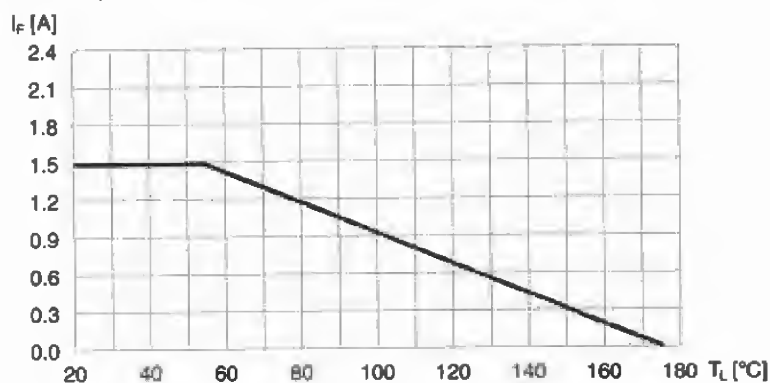


Fig. 2 — Forward derating curve





1.5 A Superectifier

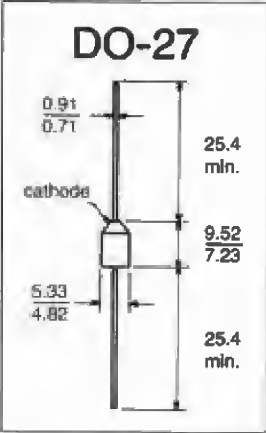
650 to 1250 V

BY126GP
BY127GP

VOLTAGE RATINGS

Type	Maximum RMS Voltage	Maximum Recurrent Peak Reverse Voltage
BY126GP	450 V	650 V
BY127GP	850 V	1250 V

CASE OUTLINE



MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature and 10 mm lead length unless otherwise specified.
Single-phase, half-wave, 50 Hz, resistive or inductive load.

Maximum Average Forward Rectified Current	1.5 A
Peak Forward Surge Current, 10 ms Single Half Sine Wave	50 A
Maximum Forward Voltage at 5.0 A _{DC}	1.5 V
Maximum Reverse Current at 25°C	5.0 μA
Maximum Reverse Current at 55°C	100 μA
Typical Reverse Recovery Time – Measured with I _F = 0.5 A, I _R = 1.0 A, i _{rr} = 0.25 A	2.5 μs
Typical Junction Capacitance at 1.0 MHz and Reverse Voltage of 4.0 V _{DC}	40 pF
Typical Thermal Resistance	30°C/W
Operating Temperature Range	–65 to +175°C
Storage Temperature Range	–65 to +175°C

RATING AND CHARACTERISTIC CURVES



Fig. 1 – Typical forward characteristic

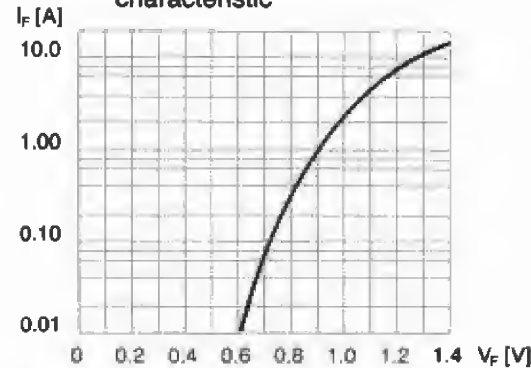
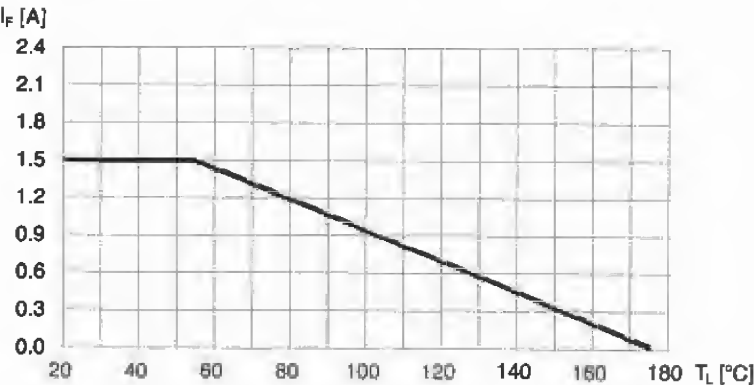


Fig. 2 – Forward derating curve





1.75 A Superectifier

650 to 1250 V

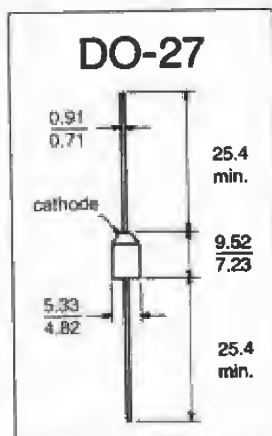
BY226GP

BY227GP

VOLTAGE RATINGS

Type	Maximum RMS Voltage	Maximum Recurrent Peak Reverse Voltage
BY226GP	450 V	650 V
BY227GP	850 V	1250 V

CASE OUTLINE



MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature and 10 mm lead length unless otherwise specified.
Single-phase, half-wave, 50 Hz, resistive or inductive load.

Maximum Average Forward Rectified Current	1.75 A
Peak Forward Surge Current, 10 ms Single Half Sine Wave	60 A
Maximum Forward Voltage at 5.0 A _{DC}	1.5 V
Maximum Reverse Current at 25°C	5.0 μA
Maximum Reverse Current at 55°C	100 μA
Typical Reverse Recovery Time – Measured with I _F = 0.5 A, I _R = 1.0 A, I _{rr} = 0.25 A	2.5 μs
Typical Junction Capacitance at 1.0 MHz and Reverse Voltage of 4.0 V _{DC}	40 pF
Typical Thermal Resistance	30°C/W
Operating Temperature Range	–65 to +175°C
Storage Temperature Range	–65 to +175°C

RATING AND CHARACTERISTIC CURVES



Fig. 1 – Typical forward characteristic

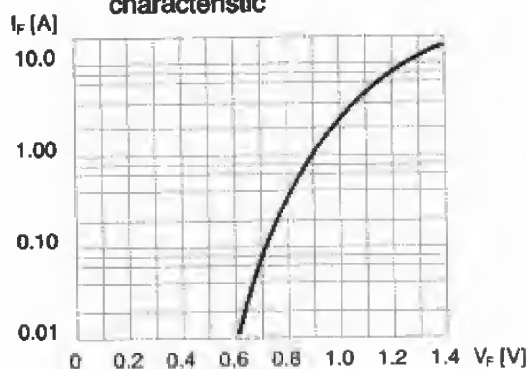
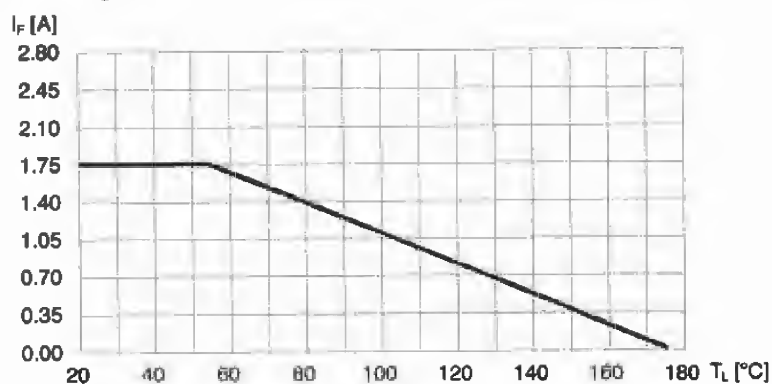


Fig. 2 – Forward derating curve





2 A Superrectifier

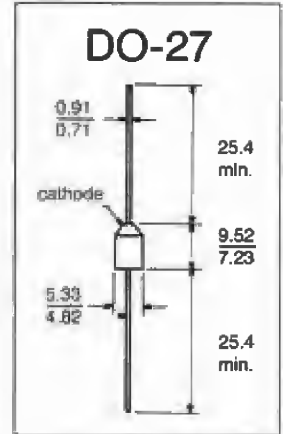
50 to 1000 V

GP20
Series

VOLTAGE RATINGS

Type	Maximum Forward Voltage at 2.0 A _{DC}	Maximum RMS Voltage	Maximum Recurrent Peak Reverse Voltage
GP20A	1.2 V	35 V	50 V
GP20B	1.2 V	70 V	100 V
GP20D	1.1 V	140 V	200 V
GP20G	1.1 V	280 V	400 V
GP20J	1.1 V	420 V	600 V
GP20K	1.1 V	560 V	800 V
GP20M	1.1 V	700 V	1000 V

CASE OUTLINE



MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature and 10 mm lead length unless otherwise specified.
Single-phase, half-wave, 50 Hz, resistive or inductive load.

Maximum Average Forward Rectified Current	2.0 A
Peak Forward Surge Current, 10 ms Single Half Sine Wave	65 A
Maximum Reverse Current at 25°C	5 μ A
Maximum Reverse Current at 55°C	100 μ A
Typical Reverse Recovery Time – Measured with $I_F = 0.5$ A, $I_R = 1.0$ A, $t_{rr} = 0.25$ A	2.5 μ s
Typical Junction Capacitance at 1.0 MHz and Reverse Voltage of 4.0 V _{DC}	40 pF
Typical Thermal Resistance	30°C/W
Operating Temperature Range	–65 to +175°C
Storage Temperature Range	–65 to +175°C

RATING AND CHARACTERISTIC CURVES



Fig. 1 – Typical forward characteristic

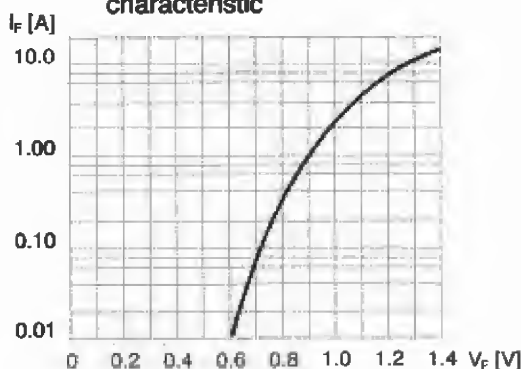
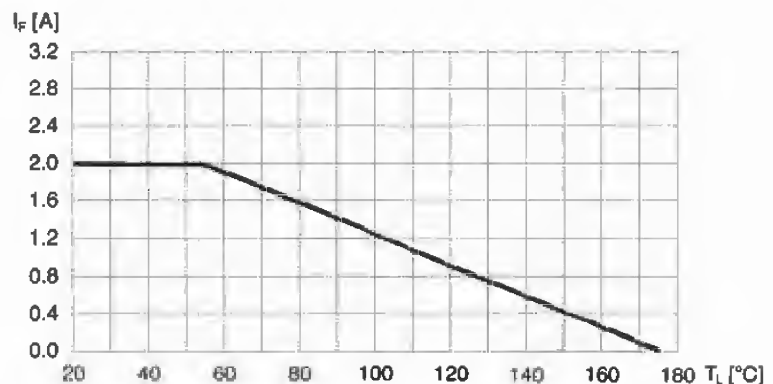


Fig. 2 – Forward derating curve





3 A Superectifier

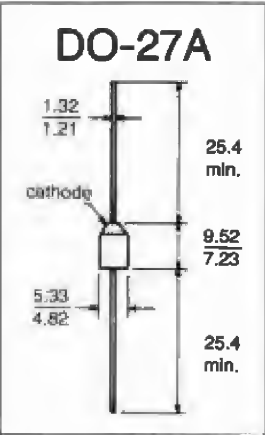
200 to 800 V

1N5624GP
thru
1N5627GP

VOLTAGE RATINGS

Type	Maximum RMS Voltage	Maximum Recurrent Peak Reverse Voltage
1N5624GP	140 V	200 V
1N5625GP	280 V	400 V
1N5626GP	420 V	600 V
1N5627GP	560 V	800 V

CASE OUTLINE



MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature and 10 mm lead length unless otherwise specified.
Single-phase, half-wave, 50 Hz, resistive or inductive load.

Maximum Average Forward Rectified Current	3.0 A
Peak Forward Surge Current, 10 ms Single Half Sine Wave	125 A
Maximum Forward Voltage at 3.0 A _{DC}	1.0 V
Maximum Reverse Current at 25°C	5.0 µA
Maximum Reverse Current at 100°C	100 µA
Typical Reverse Recovery Time – Measured with I _F = 0.5 A, I _R = 1.0 A, i _{rr} = 0.25 A	3 µs
Typical Junction Capacitance at 1.0 MHz and Reverse Voltage of 4.0 V _{DC}	60 pF
Typical Thermal Resistance	25°C/W
Operating Temperature Range	–65 to +175°C
Storage Temperature Range	–65 to +175°C

RATING AND CHARACTERISTIC CURVES



Fig. 1 – Typical forward characteristic

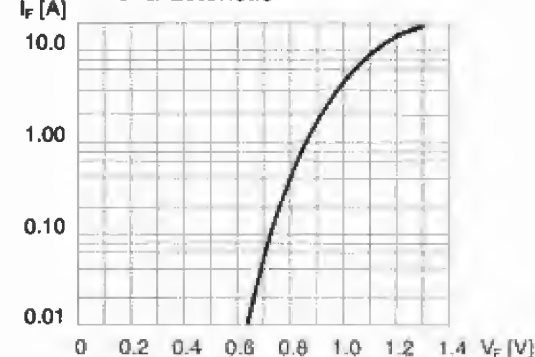
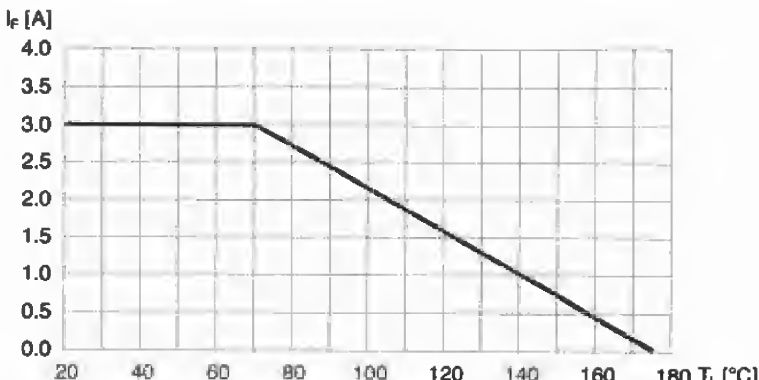


Fig. 2 – Forward derating curve





3 A Superrectifier

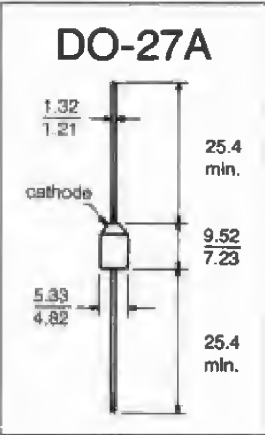
50 to 1000 V

GP30
Series

VOLTAGE RATINGS

Type	Maximum Forward Voltage at 3.0 A _{DC}	Maximum RMS Voltage	Maximum Recurrent Peak Reverse Voltage
GP30A	1.2 V	35 V	50 V
GP30B	1.2 V	70 V	100 V
GP30D	1.1 V	140 V	200 V
GP30G	1.1 V	280 V	400 V
GP30J	1.1 V	420 V	600 V
GP30K	1.1 V	560 V	800 V
GP30M	1.1 V	720 V	1000 V

CASE OUTLINE



MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature and 10 mm lead length unless otherwise specified.
Single-phase, half-wave, 50 Hz, resistive or inductive load.

Maximum Average Forward Rectified Current	3 A
Peak Forward Surge Current, 10 ms Single Half Sine Wave	125 A
Maximum Reverse Current at 25°C	5 µA
Maximum Reverse Current at 55°C	100 µA
Typical Reverse Recovery Time – Measured with $I_F = 0.5$ A, $I_R = 1.0$ A, $i_{rr} = 0.25$ A	3 µs
Typical Junction Capacitance at 1.0 MHz and Reverse Voltage of 4.0 V _{DC}	60 pF
Typical Thermal Resistance	25°C/W
Operating Temperature Range	–65 to +175°C
Storage Temperature Range	–65 to +175°C

RATING AND CHARACTERISTIC CURVES



Fig. 1 – Typical forward characteristic

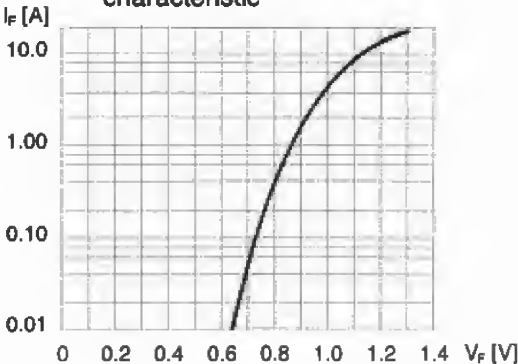
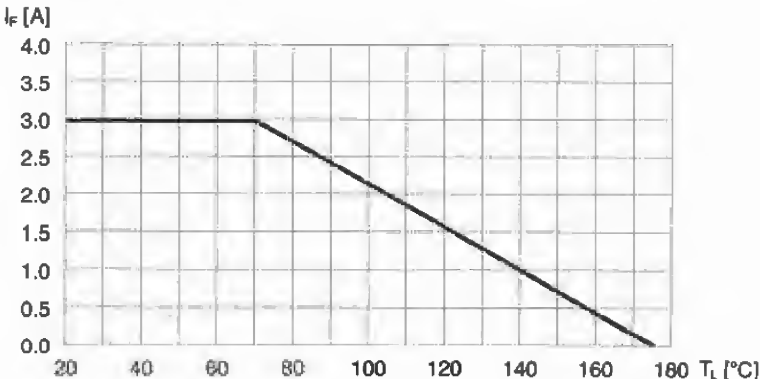


Fig. 2 – Forward derating curve





Photoflash Rectifier

1000 to 1600 V

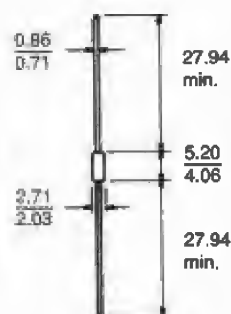
RGP01
Series

VOLTAGE RATINGS

Type	Maximum RMS Voltage	Maximum Recurrent Peak Reverse Voltage
RGP01-10	700 V	1000 V
RGP01-12	840 V	1200 V
RGP01-14	980 V	1400 V
RGP01-16	1120 V	1600 V

CASE OUTLINE

DO-41



MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature and 10 mm lead length unless otherwise specified.
Single-phase, half-wave, 50 Hz, resistive or inductive load.

Maximum Average Forward Rectified Current	100 mA
Peak Forward Surge Current, 10 ms Single Half Sine Wave	20 A
Maximum Forward Voltage at 0.1 A _{DC}	1.5 V
Maximum Reverse Current at 25°C	5 μA
Maximum Reverse Current at 55°C	100 μA
Maximum Reverse Recovery Time – Measured with I _F = 10 mA, I _R = 10 mA, i _{rr} = 1 mA	1 μs
Typical Junction Capacitance at 1.0 MHz and Reverse Voltage of 4.0 V _{DC}	15 pF
Typical Thermal Resistance	50°C/W
Operating Temperature Range	–65 to +175°C
Storage Temperature Range	–65 to +175°C

RATING AND CHARACTERISTIC CURVES



Fig. 1 – Typical forward characteristic

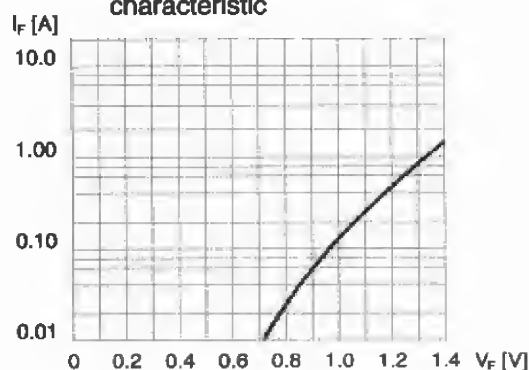
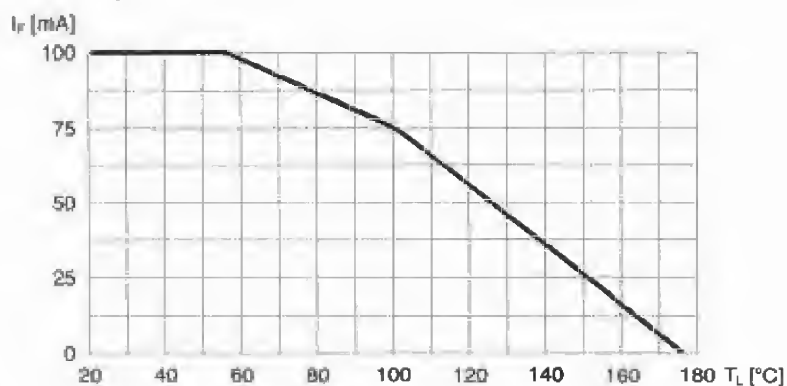


Fig. 2 – Forward derating curve





0.4 A Superectifier

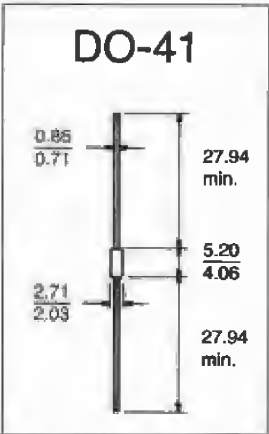
350 and 600 V / Fast Recovery

BY206GP
BY207GP

VOLTAGE RATINGS

Type	Maximum Recurrent Peak Reverse Voltage
BY206GP	350 V
BY207GP	600 V

CASE OUTLINE



MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature and 10 mm lead length unless otherwise specified.
Single-phase, half-wave, 50 Hz, resistive or inductive load.

Maximum Average Forward Rectified Current	0.4 A
Peak Forward Surge Current, 10 ms Single Half Sine Wave	15 A
Maximum Forward Voltage at 2.0 A _{DC}	1.5 V
Maximum Reverse Current at 25°C	5.0 µA
Maximum Reverse Current at 100°C	100 µA
Typical Reverse Recovery Time – Measured with I _F = 0.4 A, V _R = 50 V	1 µs
Typical Junction Capacitance at 1.0 MHz and Reverse Voltage of 4.0 V _{DC}	15 pF
Typical Thermal Resistance	50°C/W
Operating Temperature Range	–65 to +175°C
Storage Temperature Range	–65 to +175°C

RATING AND CHARACTERISTIC CURVES



Fig. 1 – Typical forward characteristic

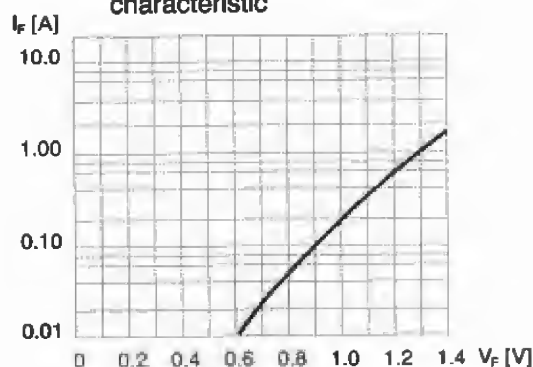
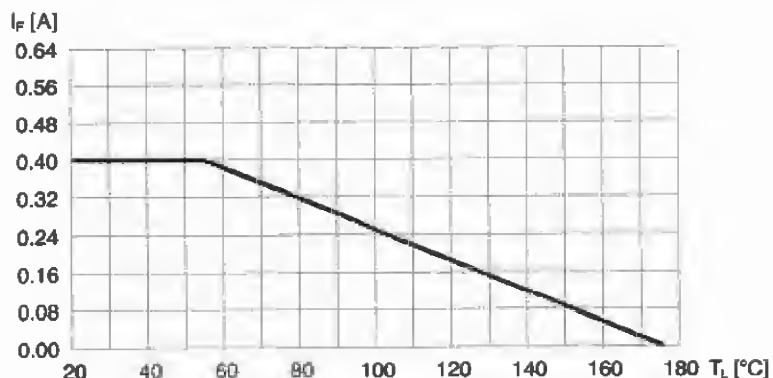


Fig. 2 – Forward derating curve





0.5 A Superectifier

400 to 1000 V / Fast Recovery

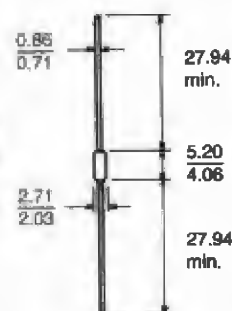
BA157GP
thru
BA159GP

VOLTAGE AND REVERSE RECOVERY RATINGS

Type	Maximum Reverse Recovery Time $I_F = .5 \text{ A}$, $I_R = 1 \text{ A}$, $t_{rr} = .25 \text{ A}$	Maximum Recurrent Peak Reverse Voltage
BA157GP	150 ns	400 V
BA158GP	250 ns	600 V
BA159DGP	500 ns	800 V
BA159GP	500 ns	1000 V

CASE OUTLINE

DO-41



MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature and 10 mm lead length unless otherwise specified.
Single-phase, half-wave, 50 Hz, resistive or inductive load.

Maximum Average Forward Rectified Current	0.5 A
Peak Forward Surge Current, 10 ms Single Half Sine Wave	20 A
Maximum Forward Voltage at 1.0 A _{DC}	1.5 V
Maximum Reverse Current at 25°C	5.0 μA
Maximum Reverse Current at 55°C	100 μA
Typical Junction Capacitance at 1.0 MHz and Reverse Voltage of 4.0 V _{DC}	15 pF
Typical Thermal Resistance	50°C/W
Operating Temperature Range	-65 to +175°C
Storage Temperature Range	-65 to +175°C

RATING AND CHARACTERISTIC CURVES



Fig. 1 — Typical forward characteristic

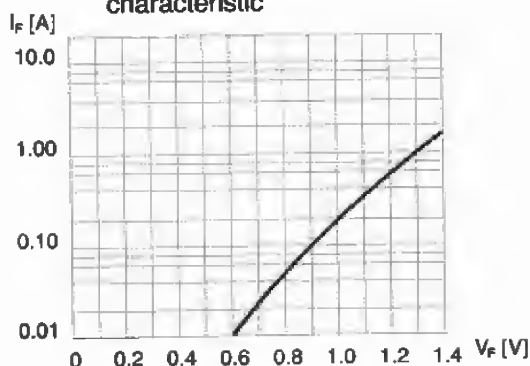
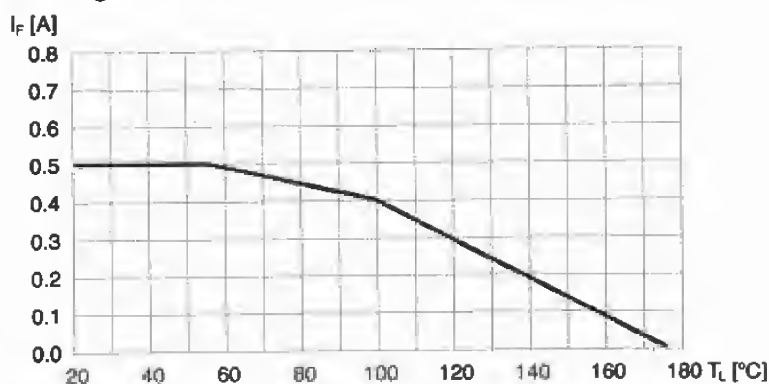


Fig. 2 — Forward derating curve





1 A Superelectifier

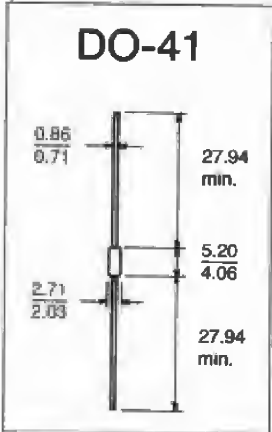
200 to 1000 V / Fast Recovery

1N4942GP
thru
1N4948GP

VOLTAGE AND REVERSE RECOVERY RATINGS

Type	Maximum Reverse Recovery Time $I_F = .5 \text{ A}$, $I_R = 1 \text{ A}$, $t_{rr} = .25 \text{ A}$	Maximum Recurrent Peak Reverse Voltage
1N4942GP	150 ns	200 V
1N4944GP	150 ns	400 V
1N4946GP	150 ns	600 V
1N4947GP	250 ns	800 V
1N4948GP	500 ns	1000 V

CASE OUTLINE



MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature and 10 mm lead length unless otherwise specified.
Single-phase, half-wave, 50 Hz, resistive or inductive load.

Maximum Average Forward Rectified Current	1.0 A
Peak Forward Surge Current, 10 ms Single Half Sine Wave	25 A
Maximum Forward Voltage at 1.0 A _{DC}	1.3 V
Maximum Reverse Current at 25°C	1.0 μA
Maximum Reverse Current at 150°C	200 μA
Typical Junction Capacitance at 1.0 MHz and Reverse Voltage of 4.0 V _{DC}	15 pF
Typical Thermal Resistance	50°C/W
Operating Temperature Range	-65 to +175°C
Storage Temperature Range	-65 to +175°C

RATING AND CHARACTERISTIC CURVES



Fig. 1 — Typical forward characteristic

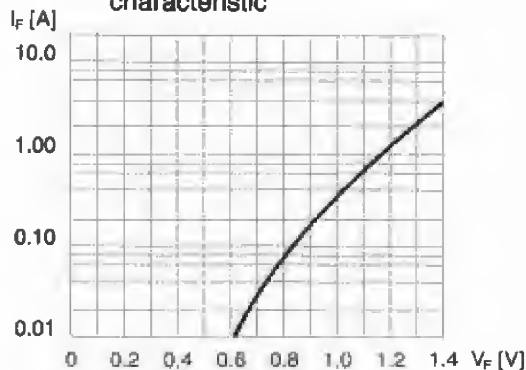
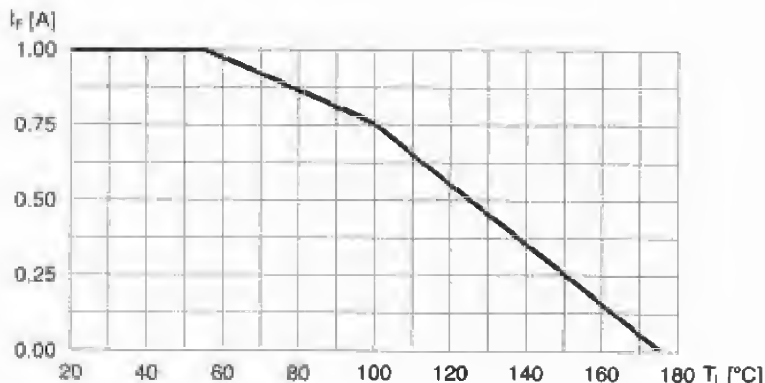


Fig. 2 — Forward derating curve





1 A Superectifier

50 to 1000 V / Fast Recovery

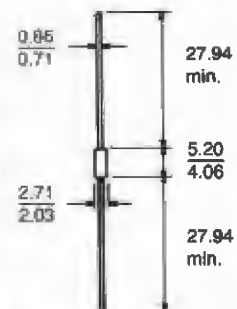
RGP10
Series

VOLTAGE AND REVERSE RECOVERY RATINGS

Type	Maximum Reverse Recovery Time $I_F = .5 \text{ A}, I_R = 1 \text{ A}, i_{rr} = .25 \text{ A}$	Maximum Recurrent Peak Reverse Voltage
RGP10A	150 ns	50 V
RGP10B	150 ns	100 V
RGP10D	150 ns	200 V
RGP10G	150 ns	400 V
RGP10J	250 ns	600 V
RGP10K	500 ns	800 V
RGP10M	500 ns	1000 V

CASE OUTLINE

DO-41



MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature and 10 mm lead length unless otherwise specified.
Single-phase, half-wave, 50 Hz, resistive or inductive load.

Maximum Average Forward Rectified Current	1 A
Peak Forward Surge Current, 10 ms Single Half Sine Wave	30 A
Maximum Forward Voltage at 1 A _{DC}	1.3 V
Maximum Reverse Current at 25°C	5 μA
Maximum Reverse Current at 55°C	100 μA
Typical Junction Capacitance at 1.0 MHz and Reverse Voltage of 4.0 V _{DC}	15 pF
Typical Thermal Resistance	50°C/W
Operating Temperature Range	-65 to +175°C
Storage Temperature Range	-65 to +175°C

RATING AND CHARACTERISTIC CURVES



Fig. 1 -- Typical forward characteristic

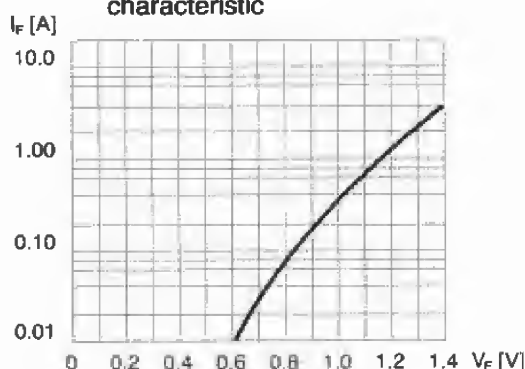
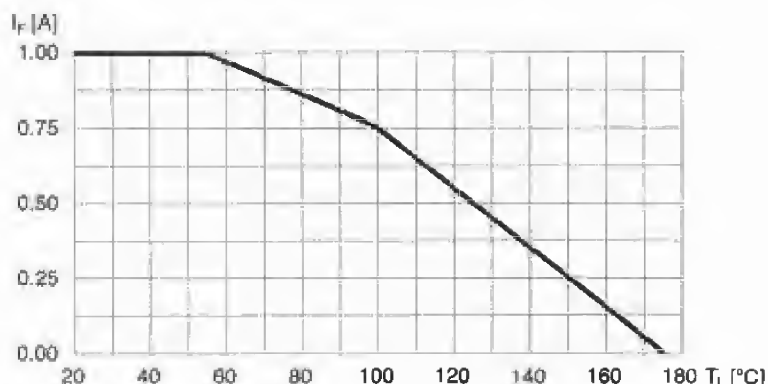


Fig. 2 -- Forward derating curve





1,5 A Superectifier

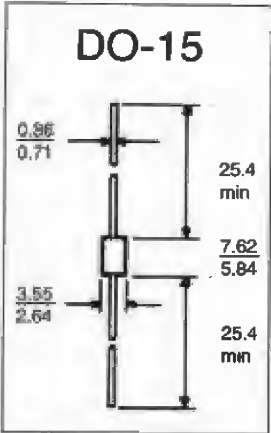
50 to 1000 V / Fast Recovery

RGP15
Series

VOLTAGE AND REVERSE RECOVERY RATINGS

Type	Maximum Reverse Recovery Time $I_F = .5 \text{ A}, I_R = 1 \text{ A}, I_{rr} = .25 \text{ A}$	Maximum Recurrent Peak Reverse Voltage
RGP15A	150 ns	50 V
RGP15B	150 ns	100 V
RGP15D	150 ns	200 V
RGP15G	150 ns	400 V
RGP15J	250 ns	600 V
RGP15K	500 ns	800 V
RGP15M	500 ns	1000 V

CASE OUTLINE



MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature and 10 mm lead length unless otherwise specified.
Single-phase, half-wave, 50 Hz, resistive or inductive load.

Maximum Average Forward Rectified Current	1.5 A
Peak Forward Surge Current, 10 ms Single Half Sine Wave	50 A
Maximum Forward Voltage at 1.5 A _{DC}	1.3 V
Maximum Reverse Current at 25°C	5 μA
Maximum Reverse Current at 55°C	100 μA
Typical Junction Capacitance at 1.0 MHz and Reverse Voltage of 4.0 V _{DC}	25 pF
Typical Thermal Resistance	40°C/W
Operating Temperature Range	-65 to +175°C
Storage Temperature Range	-65 to +175°C

RATING AND CHARACTERISTIC CURVES



Fig. 1 — Typical forward characteristic

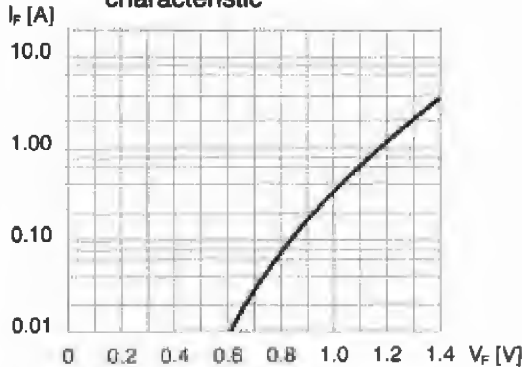
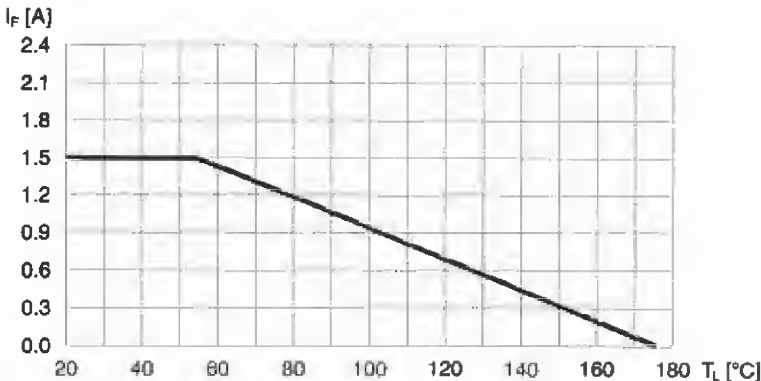


Fig. 2 — Forward derating curve





3 A Superelectifier

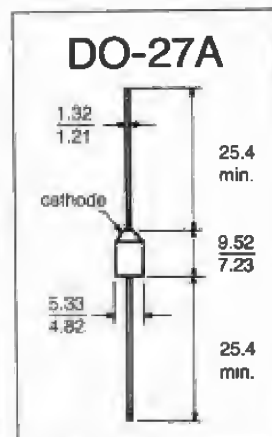
50 to 1000 V / Fast Recovery

RGP30
Series

VOLTAGE AND REVERSE RECOVERY RATINGS

Type	Maximum Reverse Recovery Time $I_F = .5 \text{ A}$, $I_R = 1 \text{ A}$, $i_{rr} = .25 \text{ A}$	Maximum Recurrent Peak Reverse Voltage
RGP30A	150 ns	50 V
RGP30B	150 ns	100 V
RGP30D	150 ns	200 V
RGP30G	150 ns	400 V
RGP30J	250 ns	600 V
RGP30K	500 ns	800 V
RGP30M	500 ns	1000 V

CASE OUTLINE



MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature and 10 mm lead length unless otherwise specified.
Single-phase, half-wave, 50 Hz, resistive or inductive load.

Maximum Average Forward Rectified Current	3 A
Peak Forward Surge Current, 10 ms Single Half Sine Wave	125 A
Maximum Forward Voltage at 3 A _{DC}	1.3 V
Maximum Reverse Current at 25°C	5 μA
Maximum Reverse Current at 55°C	100 μA
Typical Junction Capacitance at 1.0 MHz and Reverse Voltage of 4.0 V _{DC}	60 pF
Typical Thermal Resistance	25°C/W
Operating Temperature Range	-65 to +175°C
Storage Temperature Range	-65 to +175°C

RATING AND CHARACTERISTIC CURVES



Fig. 1 — Typical forward characteristic

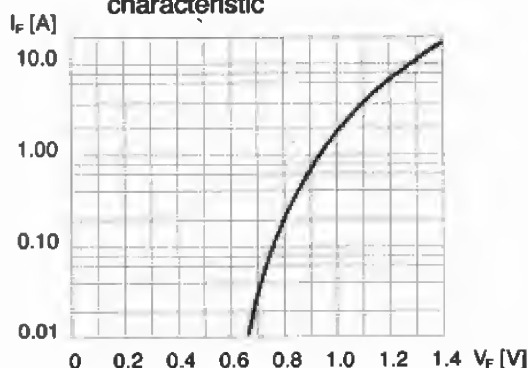
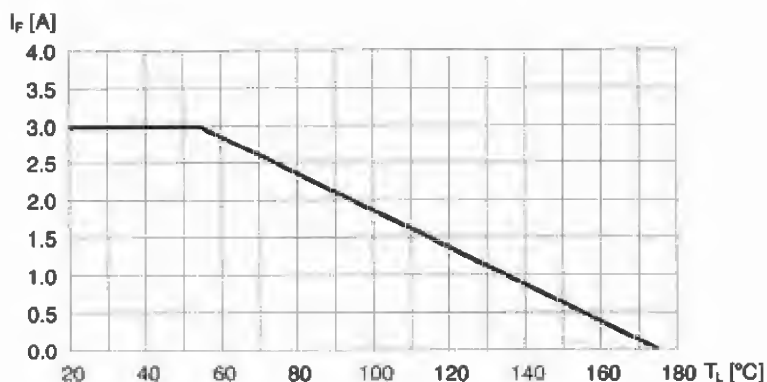


Fig. 2 — Forward derating curve





1.5 A Superectifier

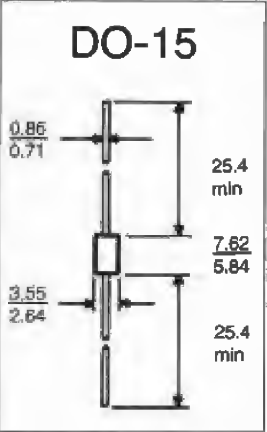
200 to 800 V / Avalanche

AGP15
Series

VOLTAGE RATINGS

Type	Maximum Recurrent Peak Reverse Voltage	Min. Avalanche Breakdown Voltage	Max. Avalanche Breakdown Voltage
AGP15-200	200 V	240 V	500 V
AGP15-400	400 V	450 V	750 V
AGP15-600	600 V	675 V	1000 V
AGP15-800	800 V	880 V	1200 V

CASE OUTLINE



MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature and 10 mm lead length unless otherwise specified.
Single-phase, half-wave, 50 Hz, resistive or inductive load.

Maximum Average Forward Rectified Current	1.5 A
Peak Forward Surge Current, 10 ms Single Half Sine Wave	50 A
Maximum Forward Voltage at 1.5 A	1.1 V
Maximum Reverse Current at 25°C	5.0 μ A
Maximum Reverse Current at 100°C	100 μ A
Maximum Continuous Avalanche Power Dissipation	500 mW
Maximum Peak Avalanche Power Dissipation 20 μ s Pulse	500 W
Typical Thermal Resistance	40°C/W
Operating Temperature Range	-65 to +175°C
Storage Temperature Range	-65 to +175°C

RATING AND CHARACTERISTIC CURVES



Fig. 1 - Typical forward characteristic

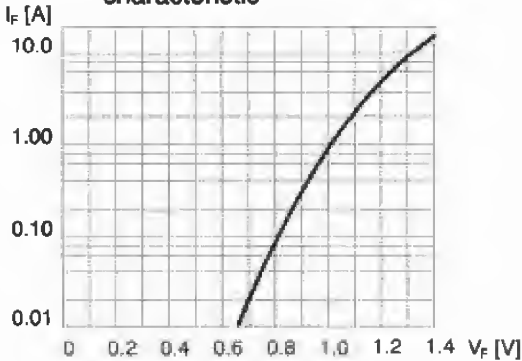
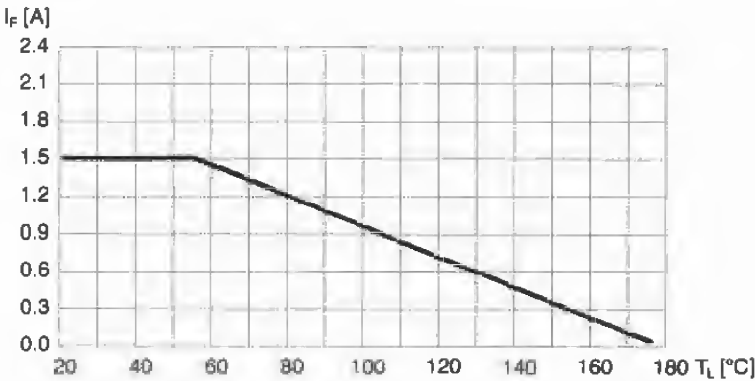


Fig. 2 - Forward derating curve





Zener Superrectifier

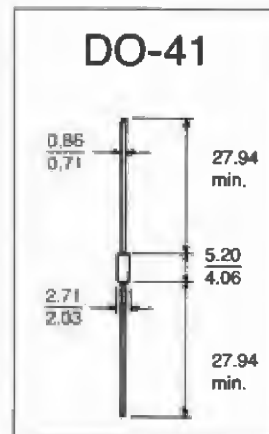
160 to 200 V/1 Watt

**ZGP10
Series**

VOLTAGE AND DYNAMIC IMPEDANCE RATINGS

Type	Maximum Dynamic Impedance	Reverse Current Measurement Voltage	Zener Voltage
ZGP10-160	1100 Ω	120 V	160 V
ZGP10-170	1200 Ω	130 V	170 V
ZGP10-180	1300 Ω	140 V	180 V
ZGP10-190	1400 Ω	150 V	190 V
ZGP10-200	1500 Ω	160 V	200 V

CASE OUTLINE



MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature and 10 mm lead length unless otherwise specified.
Single-phase, half-wave, 50 Hz, resistive or inductive load.

SUPERECTIFIER



Maximum Average Forward Rectified Current	1 A
Peak Forward Surge Current, 10 ms Single Half Sine Wave	30 A
Maximum Forward Voltage at 0.5 A _{DC}	1.0 V
Maximum Reverse Current at 25°C	0.5 μ A
Maximum Reverse Current at 100°C	100 μ A
Maximum Non Recurrent Surge Power 20 μ s Pulse	500 W
Typical Thermal Resistance	50°C/W
Operating Temperature Range	−65 to +175°C
Storage Temperature Range	−65 to +175°C

RATING AND CHARACTERISTIC CURVES

Fig. 1 – Non Recurrent Reverse Surge

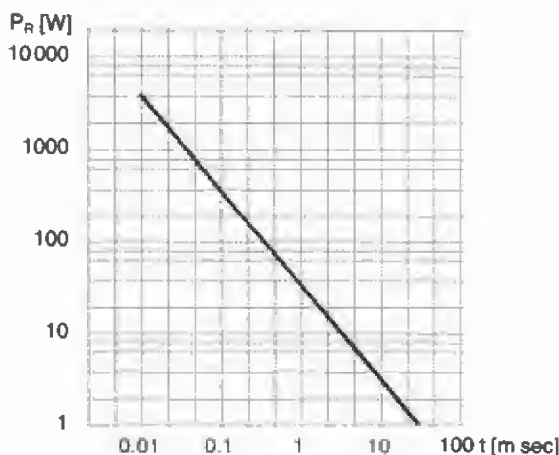
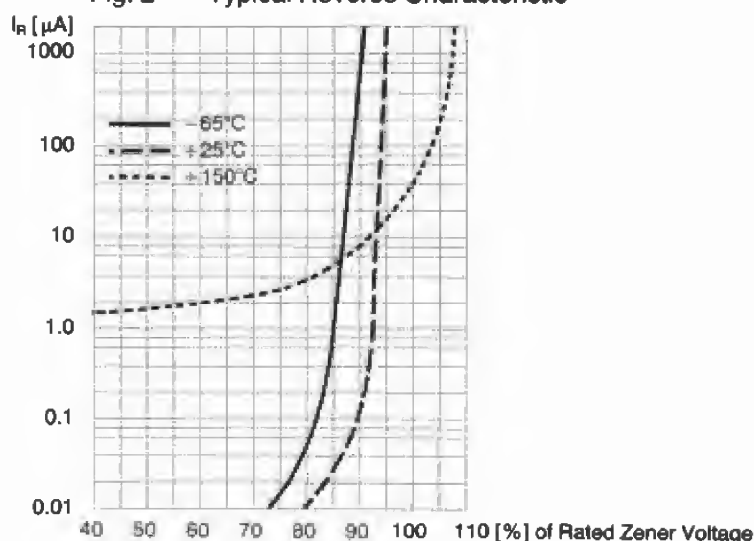


Fig. 2 – Typical Reverse Characteristic





Bridge Rectifiers

0.5 to 35 Amperes

50 V
to
1000 V

Families of General Instrument Bridge Rectifiers

All types of rectifier cells, which are produced by GENERAL INSTRUMENT, are available in bridge configurations, molded in various plastic and metal packages.

The basic types of packages are

- Round Plastic Package (Fig. 1)
- IN-LINE Plastic Package (Fig. 2)
- Square Plastic/Metal Package for Chassis Mounting (Fig. 3)

These bridge families are available with different terminals, such as wire leads, FASTON or soldering lugs.

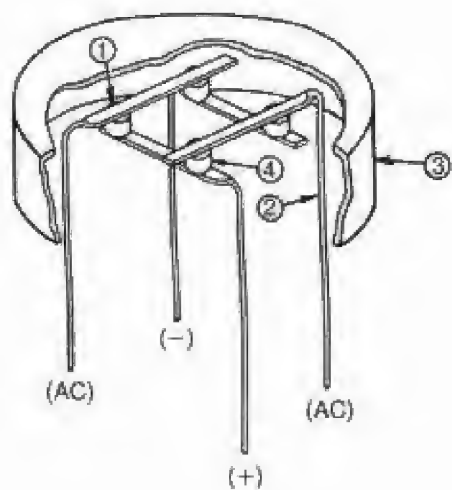


Fig. 1

ITEM	DESCRIPTION
1	Solder Preforms
2	Formed Leads
3	Case
4	Cell

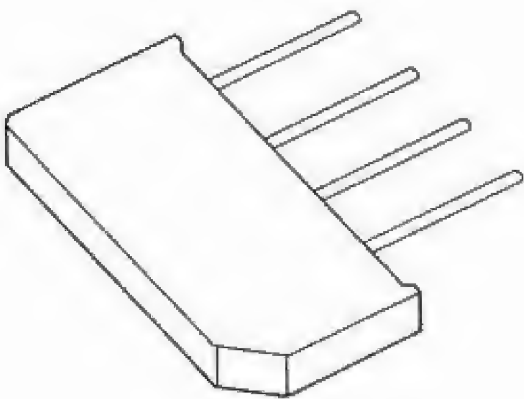


Fig. 2

IN-LINE Bridge

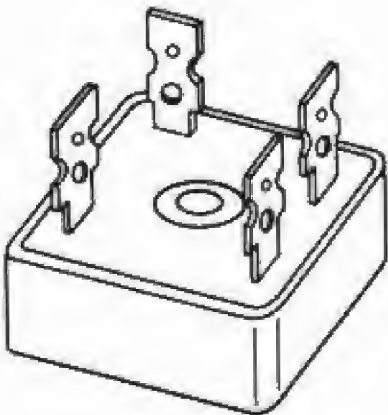


Fig. 3

Chassis Mounted Bridge

Round Bridge

Silicon Miniature Single-Phase Bridge Rectifiers 0.5 to 2 AMP

Types: WL005 (M) thru WL10 (M)
W005 (M) thru W10 (M)
2W005 thru 2W10
B40C500 (M) thru B250C500 (M)
B40C800 (M) thru B250C800 (M)
B40C1000 (M) thru B380C1000 (M)
B40C1500 thru B380C1500
B40C1500C thru B380C1500C

Features:

- Surge Overload Rating 50 and 100 Amperes Peak
- Ideal for Printed Circuit Board
- Reliable Low Cost Construction
- Silver Plated Copper Leads
- Available in Avalanche Characteristics

Silicon In-Line Single Phase Bridge Rectifiers 1.5 to 5 AMP

Types: KBP005 thru KBP10
2KBP005 thru 2KBP10
KBF005 thru KBF10
KBL005 thru KBL08
B40C3700/2200 thru B380C3700/2200
B40C5000/3300 thru B380C5000/3300

Features:

- Surge Overload Rating up to 200 Amperes Peak
- Ideal for Printed Circuit Board
- Reliable Low Cost Construction utilizing molded Plastic
- Available in Avalanche Characteristics
- Silver Plated Copper Leads

High Current Single Phase Bridge Rectifiers 3 to 35 AMP

Types: KBPC005 thru KBPC10 SUPERRECTIFIER Construction
KBPC1005 thru KBPC1110 SUPERRECTIFIER Construction
KBPC6005 thru KBPC610
KBPC6005t thru KBPC610t
KBPC8005 thru KBPC810 SUPERRECTIFIER Construction
KBPC10005 thru KBPC1010
KBPC25005 thru KBPC2510
KBPC35005 thru KBPC3510

Features:

- High Capability of Surge Overload Rating
- Insulated Case
- Low Forward Voltage Drop
- Tinned Copper Leads
- Simple Installation thru Screw hole
- Available in Avalanche and Fast Recovery Characteristics
- For all kind of DC Motors.



QUICK GUIDE TO BRIDGE RECTIFIERS

I_o (A)	1.0	1.5	1.5	2.0	2.0	2.5	4.0	I_o (A)
@ T_A (°C)	50	25	50	25	50	50	50	@ T_A (°C)
SURGE (A)	30	50	50	50	50	150	200	SURGE (A)
$V_R = 50$ (V)	WL005 (M)	W005 (M)*	KBP005*	2W005	2KBP005	KBF005	KBL005	$V_R = 50$ (V)
$V_R = 200$ (V)	WL02 (M)	W02 (M)*	KBP02 *	2W02	2KBP02	KBF02	KBL02	$V_R = 200$ (V)
$V_R = 400$ (V)	WL04 (M)	W04 (M)*	KBP04 *	2W04	2KBP04	KBF04	KBL04	$V_R = 400$ (V)
$V_R = 600$ (V)	WL06 (M)	W06 (M)*	KBP06 *	2W06	2KBP06	KBF06	KBL06	$V_R = 600$ (V)
$V_R = 800$ (V)	WL08 (M)	W08 (M)*	KBP08 *	2W08	2KBP08	KBF08	KBL08	$V_R = 800$ (V)
$V_R = 1000$ (V)	WL10 (M)	W10 (M)*	KBP10 *	2W10	2KBP10	KBF10	KBL10	$V_R = 1000$ (V)
Page	87	88	90	89	91	92	93	Page

(M) indicates Miniature Package

* Also available in Avalanche Characteristic.



QUICK GUIDE TO BRIDGE RECTIFIERS

I_o (A)	3.0	3.0	6.0	6.0	8.0	10	25	35	I_o (A)
@ T_C (°C)	50	50	100	100	50	60	60	60	@ T_C (°C)
SURGE (A)	50	50	200	200	125	200	300	400	SURGE (A)
$V_R = 50$ (V)	KBPC005 [■]	KBPC1005 [■]	KBPC6005	KBPC6005t	KBPC8005 [■]	KBPC10-005	KBPC25-005	KBPC35-005	$V_R = 50$ (V)
$V_R = 200$ (V)	KBPC02 [■]	KBPC102 [■]	KBPC602	KBPC602 t	KBPC802 [■]	KBPC10-02	KBPC25-02	KBPC35-02	$V_R = 200$ (V)
$V_R = 400$ (V)	KBPC04 [■]	KBPC104 [■]	KBPC604	KBPC604 t	KBPC804 [■]	KBPC10-04	KBPC25-04	KBPC35-04	$V_R = 400$ (V)
$V_R = 600$ (V)	KBPC06 [■]	KBPC106 [■]	KBPC606	KBPC606 t	KBPC806 [■]	KBPC10-06	KBPC25-06	KBPC35-06	$V_R = 600$ (V)
$V_R = 800$ (V)	KBPC08 [■]	KBPC108 [■]	KBPC608	KBPC608 t	KBPC808 [■]	KBPC10-08	KBPC25-08	KBPC35-08	$V_R = 800$ (V)
$V_R = 1000$ (V)	KBPC10 [■]	KBPC110 [■]	KBPC610	KBPC610 t	KBPC810 [■]	KBPC10-10	KBPC25-10	KBPC35-10	$V_R = 1000$ (V)
Page	96	97	98	99	100	101	102	103	Page

[■] SUPERECTIFIER construction also available in Avalanche and Fast Recovery Characteristics.



QUICK GUIDE TO BRIDGE RECTIFIERS

I_o (A)	0.5	0.8	1.0	1.5	1.5	3.7	5.0	I_o (A)
@ T_A (°C)	45	45	45	45	45	45	45	@ T_A (°C)
SURGE (A)	30	45	45	45	100	100	200	SURGE (A)
$V_{RMS} = 40$ (V)	B40C500 (M)	B40C800 (M)	B40C1000 (M)	B40C1500	B40C1500 C	B40C3700/2200	B40C5000/3300	$V_{RMS} = 40$ (V)
$V_{RMS} = 80$ (V)	B80C500 (M)	B80C800 (M)	B80C1000 (M)	B80C1500	B80C1500 C	B80C3700/2200	B80C5000/3300	$V_{RMS} = 80$ (V)
$V_{RMS} = 125$ (V)	B125C500 (M)	B125C800 (M)	B125C1000 (M)	B125C1500	B125C1500 C	B125C3700/2200	B125C5000/3300	$V_{RMS} = 125$ (V)
$V_{RMS} = 250$ (V)	B250C500 (M)	B250C800 (M)	B250C1000 (M)	B250C1500	B250C1500 C	B250C3700/2200	B250C5000/3300	$V_{RMS} = 250$ (V)
$V_{RMS} = 380$ (V)	B380C500 (M)	B380C800 (M)	B380C1000 (M)	B380C1500	B380C1500 C	B380C3700/2200	B380C5000/3300	$V_{RMS} = 380$ (V)
Page	82	83	84	85	86	94	95	Page

(M) indicates Miniature Package



0.5 A Bridge Rectifier

40 to 380 V_{RMS}

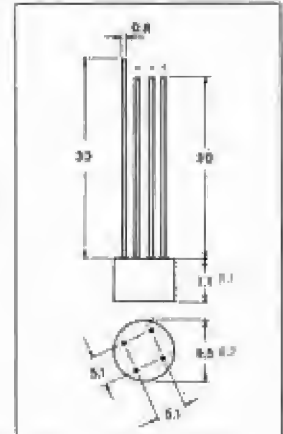
B 40C 500
B 80C 500
B125C 500
B250C 500
B380C 500

VOLTAGE RATINGS

Type	Maximum RMS Voltage	Maximum Recurrent Peak Reverse Voltage
B 40C 500 (M)	40 V	100 V
B 80C 500 (M)	80 V	190 V
B125C 500 (M)	125 V	300 V
B250C 500 (M)	250 V	600 V
B380C 500 (M)	380 V	900 V

M Indicates Miniature Package

CASE OUTLINE



MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature and 10 mm lead length unless otherwise specified.
Single-phase, half-wave, 50 Hz, resistive or inductive load.

Maximum Average Forward Rectified Current natural cooling, $t_A = 45^\circ\text{C}$ C-Load	0.5 A
R+L-Load	0.6 A
Maximum Repetitive Peak Forward Current	6 A
Peak Forward Surge Current, 10 ms Single Half Sine Wave	30 A
I^2t Rating for fusing ($t < 10$ ms)	4.5 A ² s
Maximum Forward Voltage per Element	1.25 V
Maximum Reverse Current at 25°C	10 μA
Maximum Reverse Current at 125°C	1 mA
Operating Temperature Range	-55 to +125°C
Storage Temperature Range	-55 to +150°C

RATING AND CHARACTERISTIC CURVES

Fig. 1 — Typical forward characteristic

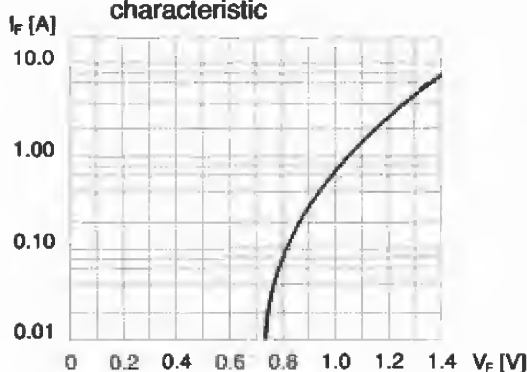
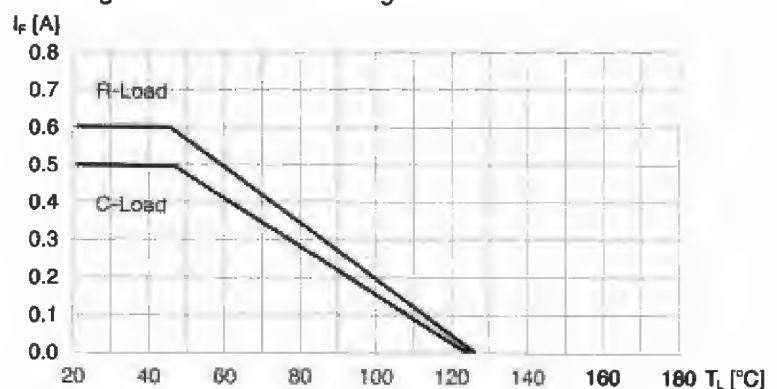


Fig. 2 — Forward derating curve





0.8 A Bridge Rectifier

40 to 380 V_{RMS}

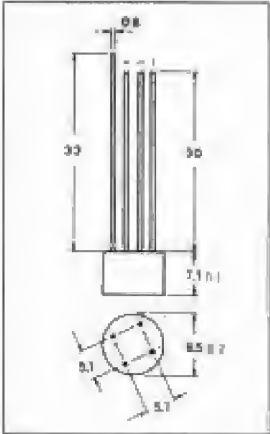
B 40C 800
B 80C 800
B125C 800
B250C 800
B380C 800

VOLTAGE RATINGS

Type	Maximum RMS Voltage	Maximum Recurrent Peak Reverse Voltage
B 40C 800 (M)	40 V	100 V
B 80C 800 (M)	80 V	190 V
B125C 800 (M)	125 V	300 V
B250C 800 (M)	250 V	600 V
B380C 800 (M)	380 V	900 V

M indicates Miniature Package

CASE OUTLINE



MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature and 10 mm lead length unless otherwise specified.
Single-phase, half-wave, 50 Hz, resistive or inductive load.

Maximum Average Forward Rectified Current natural cooling, $t_A = 45^\circ\text{C}$ C-Load	0.8 A
R+L-Load	0.9 A
Maximum Repetitive Peak Forward Current	10 A
Peak Forward Surge Current, 10 ms Single Half Sine Wave	45 A
I^2t Rating for fusing ($t < 10$ ms)	10 A ² s
Maximum Forward Voltage per Element	1.0 V
Maximum Reverse Current at 25°C	10 μA
Maximum Reverse Current at 125°C	1 mA
Operating Temperature Range	-55 to +125°C
Storage Temperature Range	-55 to +150°C

RATING AND CHARACTERISTIC CURVES

Fig. 1 – Typical forward characteristic

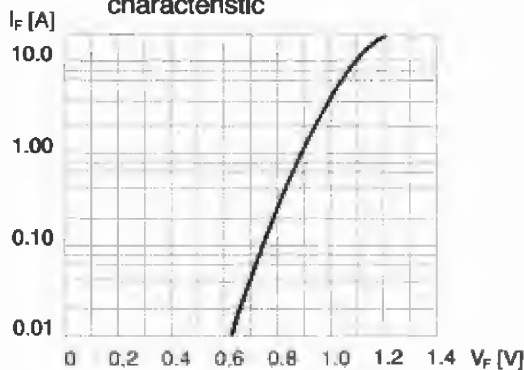
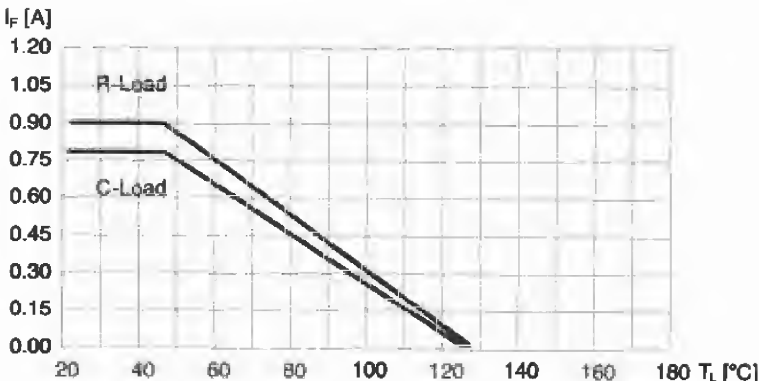


Fig. 2 – Forward derating curve





1 A Bridge Rectifier

40 to 380 V_{RMS}

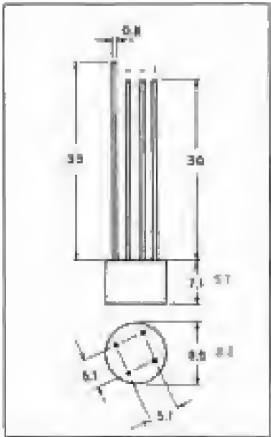
B 40C 1000
B 80C 1000
B125C 1000
B250C 1000
B380C 1000

VOLTAGE RATINGS

Type	Maximum RMS Voltage	Maximum Recurrent Peak Reverse Voltage
B 40C 1000 (M)	40 V	100 V
B 80C 1000 (M)	80 V	190 V
B125C 1000 (M)	125 V	300 V
B250C 1000 (M)	250 V	600 V
B380C 1000 (M)	380 V	900 V

M indicates Miniature Package

CASE OUTLINE



MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature and 10 mm lead length unless otherwise specified.
Single-phase, half-wave, 50 Hz, resistive or inductive load.

Maximum Average Forward Rectified Current natural cooling, $t_A = 45^\circ\text{C}$ C-Load	1.0 A
R+L-Load	1.2 A
Maximum Repetitive Peak Forward Current	10 A
Peak Forward Surge Current, 10 ms Single Half Sine Wave	45 A
I^2t Rating for fusing ($t < 10$ ms)	10 A ² s
Maximum Forward Voltage per Element	1.0 V
Maximum Reverse Current at 25°C	10 μA
Maximum Reverse Current at 125°C	1 mA
Operating Temperature Range	-55 to +125°C
Storage Temperature Range	-55 to +150°C

RATING AND CHARACTERISTIC CURVES

Fig. 1 — Typical forward characteristic

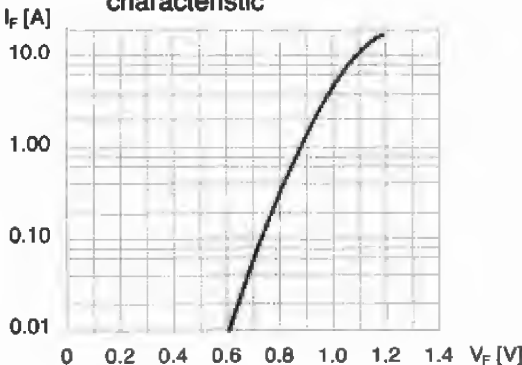
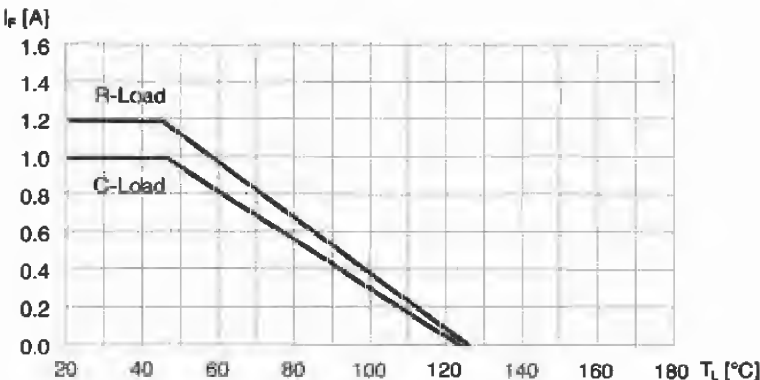


Fig. 2 — Forward derating curve





1.5 A Bridge Rectifier

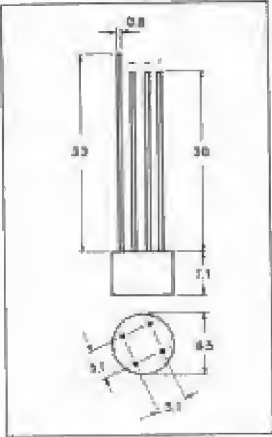
40 to 380 V_{RMS}

B 40C 1500
B 80C 1500
B125C 1500
B250C 1500
B380C 1500

VOLTAGE RATINGS

Type	Maximum RMS Voltage	Maximum Recurrent Peak Reverse Voltage
B 40C 1500	40 V	100 V
B 80C 1500	80 V	190 V
B125C 1500	125 V	300 V
B250C 1500	250 V	600 V
B380C 1500	380 V	900 V

CASE OUTLINE



MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature and 10 mm lead length unless otherwise specified.
Single-phase, half-wave, 50 Hz, resistive or inductive load.

Maximum Average Forward Rectified Current natural cooling, $t_A = 45^\circ\text{C}$ C-Load	1.5 A
R+L-Load	1.6 A
Maximum Repetitive Peak Forward Current	10 A
Peak Forward Surge Current, 10 ms Single Half Sine Wave	45 A
I^2t Rating for fusing ($t < 10$ ms)	10 A ² s
Maximum Forward Voltage per Element	1.0 V
Maximum Reverse Current at 25°C	10 μA
Maximum Reverse Current at 125°C	1.0 mA
Operating Temperature Range	-55 to +125°C
Storage Temperature Range	-55 to +150°C

RATING AND CHARACTERISTIC CURVES

Fig. 1 — Typical forward characteristic

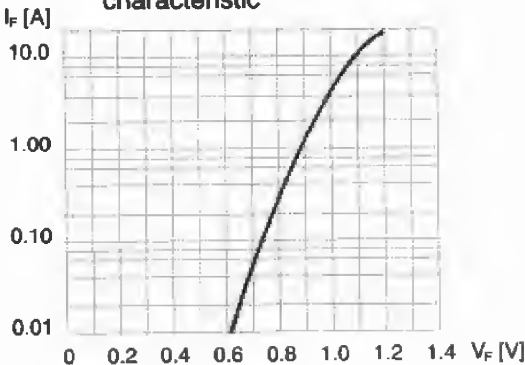
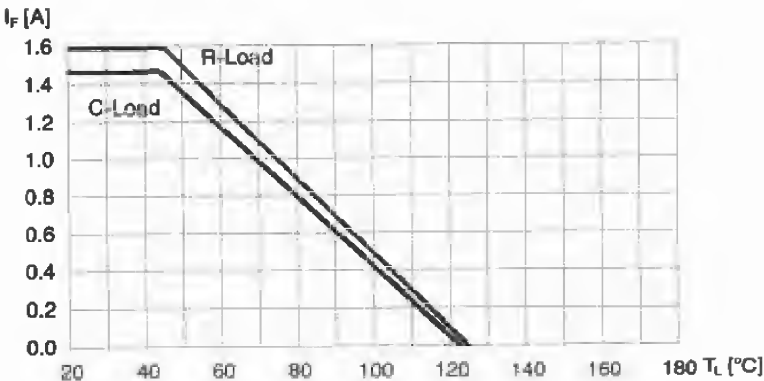


Fig. 2 — Forward derating curve





1.5 A Bridge Rectifier

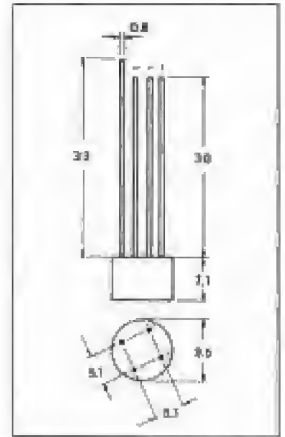
40 to 380 V_{RMS}

B 40C 1500C
B 80C 1500C
B125C 1500C
B250C 1500C
B380C 1500C

VOLTAGE RATINGS

Type	Maximum RMS Voltage	Maximum Recurrent Peak Reverse Voltage
B 40C 1500C	40 V	100 V
B 80C 1500C	80 V	190 V
B125C 1500C	125 V	300 V
B250C 1500C	250 V	600 V
B380C 1500C	380 V	900 V

CASE OUTLINE



MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature and 10 mm lead length unless otherwise specified.
Single-phase, half-wave, 50 Hz, resistive or inductive load.

Maximum Average Forward Rectified Current natural cooling, $t_A = 45^\circ\text{C}$ C-Load	1.5 A
R+L-Load	1.6 A
Maximum Repetitive Peak Forward Current	12 A
Peak Forward Surge Current, 10 ms Single Half Sine Wave	100 A
I^2t Rating for fusing ($t < 10$ ms)	50 A ² s
Maximum Forward Voltage per Element	0.95 V
Maximum Reverse Current at 25°C	10 μA
Maximum Reverse Current at 125°C	1 mA
Operating Temperature Range	-55 to +125°C
Storage Temperature Range	-55 to +150°C

RATING AND CHARACTERISTIC CURVES

Fig. 1 – Typical forward characteristic

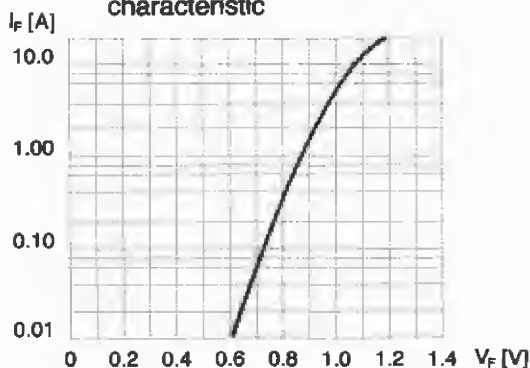
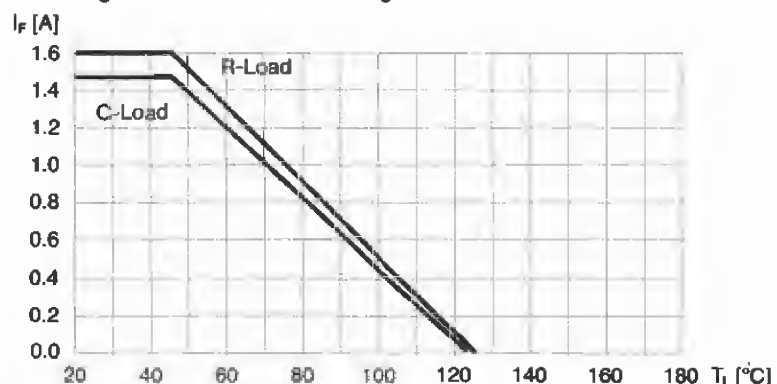


Fig. 2 – Forward derating curve





1 A Bridge Rectifier

50 to 1000 V

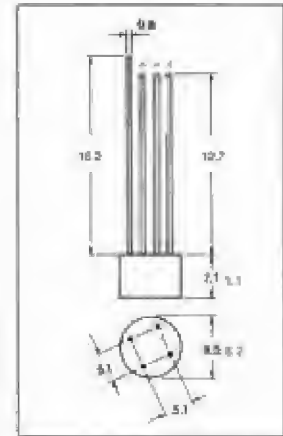
WL
Series

VOLTAGE RATINGS

Type	Maximum RMS Voltage	Maximum Recurrent Peak Reverse Voltage
WL005 (M)	35 V	50 V
WL02 (M)	140 V	200 V
WL04 (M)	280 V	400 V
WL06 (M)	420 V	600 V
WL08 (M)	560 V	800 V
WL10 (M)	700 V	1000 V

M indicates Miniature Package

CASE OUTLINE



MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature and 10 mm lead length unless otherwise specified.
Single-phase, half-wave, 50 Hz, resistive or inductive load.

Maximum Average Forward Rectified Current	1.0 A
Peak Forward Surge Current, 10 ms Single Half Sine Wave	30 A
Maximum Forward Voltage per Element at 1 A _{DC}	1.2 V
Maximum Reverse Current at 25°C	10 µA
Maximum Reverse Current at 100°C	1.0 mA
I ² t Rating for fusing (t < 10 ms)	4.5 A ² s
Typical Thermal Resistance R _{th J-A}	25 °C/W
Operating Temperature Range	-55 to +125°C
Storage Temperature Range	-55 to +150°C

RATING AND CHARACTERISTIC CURVES

Fig. 1 — Typical forward characteristic

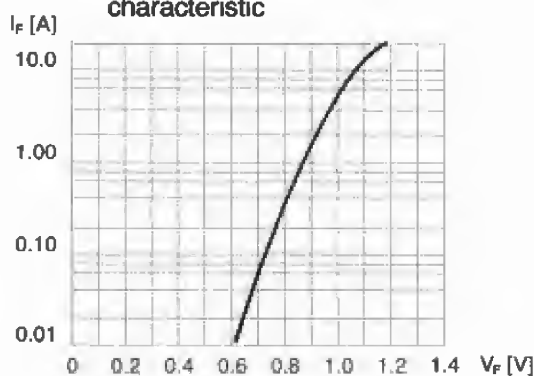
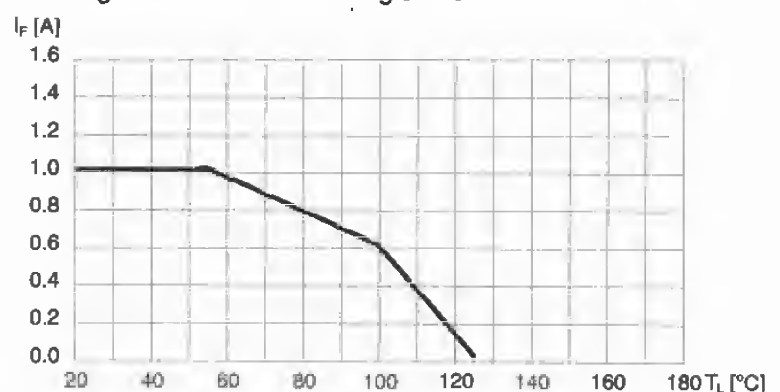


Fig. 2 — Forward derating curve





1.5 A Bridge Rectifier

50 to 1000 V

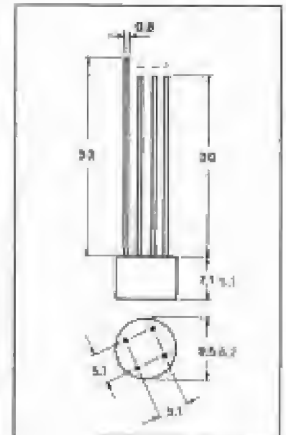
W
Series

VOLTAGE RATINGS

Type	Maximum RMS Voltage	Maximum Recurrent Peak Reverse Voltage
W005 (M)	35 V	50 V
W02 (M)	140 V	200 V
W04 (M)	280 V	400 V
W06 (M)	420 V	600 V
W08 (M)	560 V	800 V
W10 (M)	700 V	1000 V

M indicates Miniature Package Suffix A indicates Avalanche Characteristic.

CASE OUTLINE



MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature and 10 mm lead length unless otherwise specified.
Single-phase, half-wave, 50 Hz, resistive or inductive load.

Maximum Average Forward Rectified Current	1.5 A
Peak Forward Surge Current, 10 ms Single Half Sine Wave	50 A
Maximum Forward Voltage per Element at 1 A _{DC}	1.0 V
Maximum Reverse Current at 25°C	10 µA
Maximum Reverse Current at 100°C	1.0 mA
I ² t Rating for fusing (t < 10 ms)	5 A ² s
Typical Thermal Resistance R _{th J-A}	25 °C/W
Operating Temperature Range	-55 to +125°C
Storage Temperature Range	-55 to +150°C

RATING AND CHARACTERISTIC CURVES

Fig. 1 — Typical forward characteristic

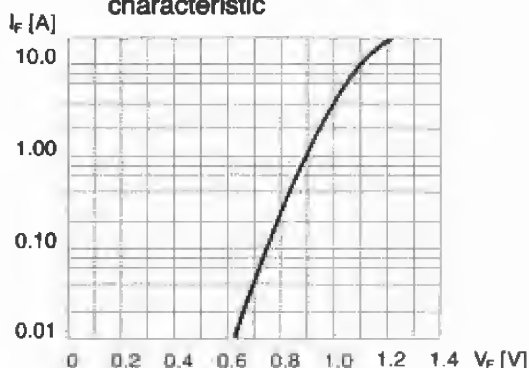
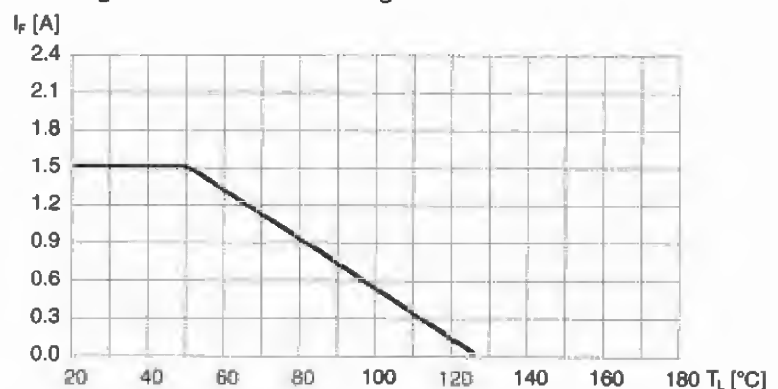


Fig. 2 — Forward derating curve





2 A Bridge Rectifier

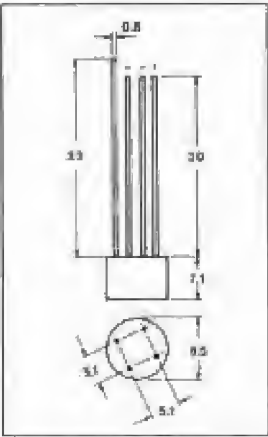
50 to 1000 V

2W
Series

VOLTAGE RATINGS

Type	Maximum RMS Voltage	Maximum Recurrent Peak Reverse Voltage
2W005	35 V	50 V
2W02	140 V	200 V
2W04	280 V	400 V
2W06	420 V	600 V
2W08	560 V	800 V
2W10	700 V	1000 V

CASE OUTLINE



MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature and 10 mm lead length unless otherwise specified.
Single-phase, half-wave, 50 Hz, resistive or inductive load.

Maximum Average Forward Rectified Current	2.0 A
Peak Forward Surge Current, 10 ms Single Half Sine Wave	50 A
Maximum Forward Voltage per Element at 1 A _{DC}	1.0 V
Maximum Reverse Current at 25°C	10 µA
Maximum Reverse Current at 100°C	1 mA
I ² t Rating for fusing (t < 10 ms)	5 A ² s
Typical Thermal Resistance R _{th J-A}	25 °C/W
Operating Temperature Range	-55 to +125°C
Storage Temperature Range	-55 to +150°C

RATING AND CHARACTERISTIC CURVES

Fig. 1 – Typical forward characteristic

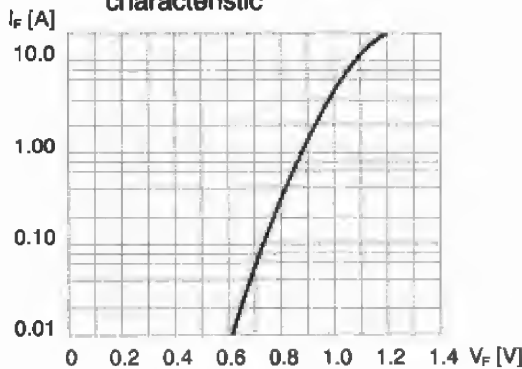
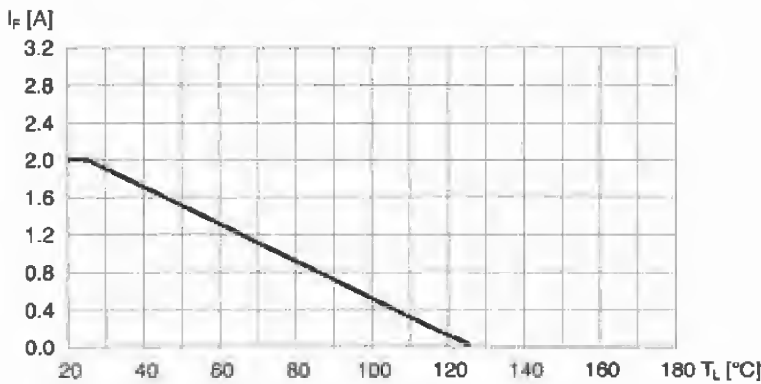


Fig. 2 – Forward derating curve





1.5 A Bridge Rectifier

50 to 1000 V

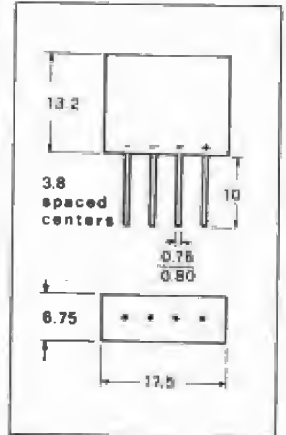
KBP
Series

VOLTAGE RATINGS

Type	Maximum RMS Voltage	Maximum Recurrent Peak Reverse Voltage
KBP005	35 V	50 V
KBP02	140 V	200 V
KBP04	280 V	400 V
KBP06	420 V	600 V
KBP08	560 V	800 V
KBP10	700 V	1000 V

Suffix A Indicates Avalanche Characteristic

CASE OUTLINE



MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature and 10 mm lead length unless otherwise specified.
Single-phase, half-wave, 50 Hz, resistive or inductive load.

Maximum Average Forward Rectified Current	1.5 A
Peak Forward Surge Current, 10 ms Single Half Sine Wave	50 A
Maximum Forward Voltage per Element at 1 A _{OC}	1.0 V
Maximum Reverse Current at 25°C	10 μA
Maximum Reverse Current at 100°C	1 mA
I ² t Rating for fusing (t < 10 ms)	5 A ² s
Typical Thermal Resistance R _{th J-A}	25 °C/W
Operating Temperature Range	-55 to +125°C
Storage Temperature Range	-55 to +150°C

RATING AND CHARACTERISTIC CURVES

Fig. 1 — Typical forward characteristic

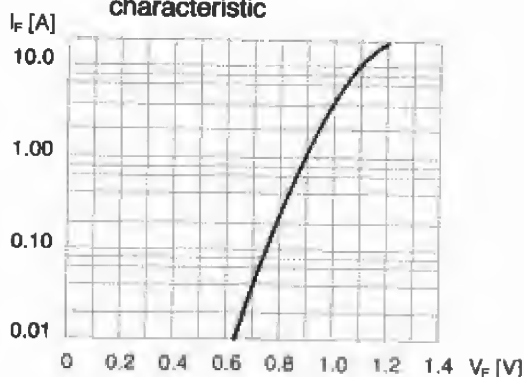
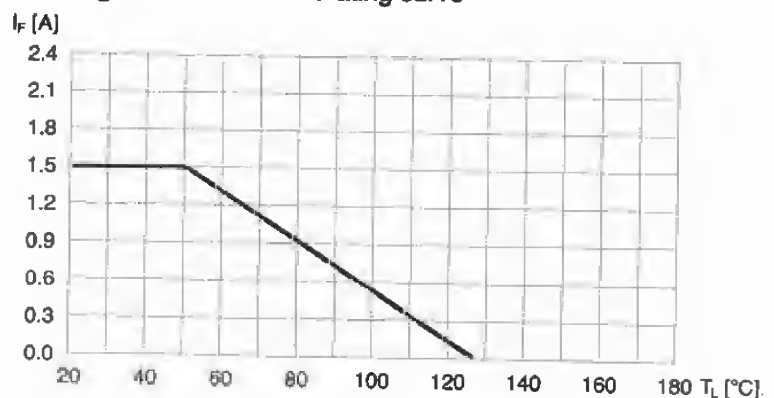


Fig. 2 — Forward derating curve





2 A Bridge Rectifier

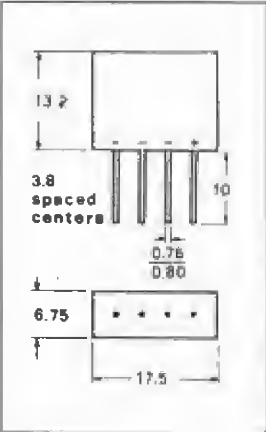
50 to 1000 V

2KBP
Series

VOLTAGE RATINGS

Type	Maximum RMS Voltage	Maximum Recurrent Peak Reverse Voltage
2KBP005	35 V	50 V
2KBP02	140 V	200 V
2KBP04	280 V	400 V
2KBP06	420 V	600 V
2KBP08	560 V	800 V
2KBP10	700 V	1000 V

CASE OUTLINE



MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature and 10 mm lead length unless otherwise specified.
Single-phase, half-wave, 50 Hz, resistive or inductive load.

Maximum Average Forward Rectified Current	2 A
Peak Forward Surge Current, 10 ms Single Half Sine Wave	50 A
Maximum Forward Voltage per Element at 1 A _{DC}	1.0 V
Maximum Reverse Current at 25°C	10 μA
Maximum Reverse Current at 100°C	1.0 mA
I ² t Rating for fusing (t < 10 ms)	5 A ² s
Typical Thermal Resistance R _{th J-A}	25 °C/W
Operating Temperature Range	−55 to +125°C
Storage Temperature Range	−55 to +150°C

RATING AND CHARACTERISTIC CURVES

Fig. 1 — Typical forward characteristic

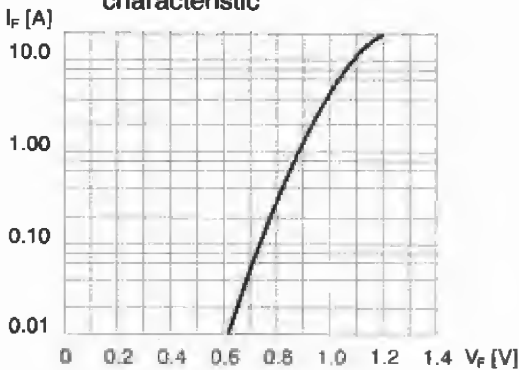
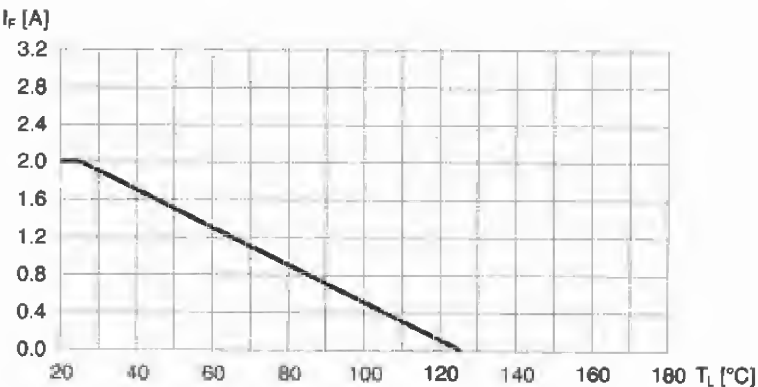


Fig. 2 — Forward derating curve





2.5 A Bridge Rectifier

50 to 1000 V

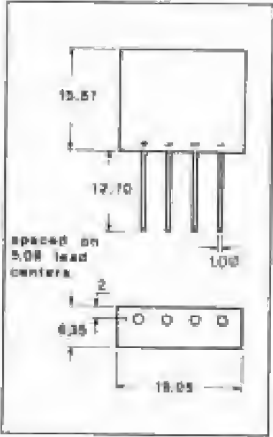
KBF
Series

VOLTAGE RATINGS

Type	Maximum RMS Voltage	Maximum Recurrent Peak Reverse Voltage
KBF005	35 V	50 V
KBF02	140 V	200 V
KBF04	280 V	400 V
KBF06	420 V	600 V
KBF08	560 V	800 V
KBF10*	700 V	1000 V

* Limited Production

CASE OUTLINE



MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature and 10 mm lead length unless otherwise specified.
Single-phase, half-wave, 50 Hz, resistive or inductive load.

Maximum Average Forward Rectified Current	2.5 A
Peak Forward Surge Current, 10 ms Single Half Sine Wave	150 A
Maximum Forward Voltage per Element at 2.5 A _{DC}	1.2 V
Maximum Reverse Current at 25°C	10 µA
Maximum Reverse Current at 100°C	1.0 mA
I ² t Rating for fusing (t < 10 ms)	112 A ² s
Typical Thermal Resistance R _{th J-A}	15 °C/W
Operating Temperature Range	-55 to +125°C
Storage Temperature Range	-55 to +150°C

RATING AND CHARACTERISTIC CURVES

Fig. 1 – Typical forward characteristic

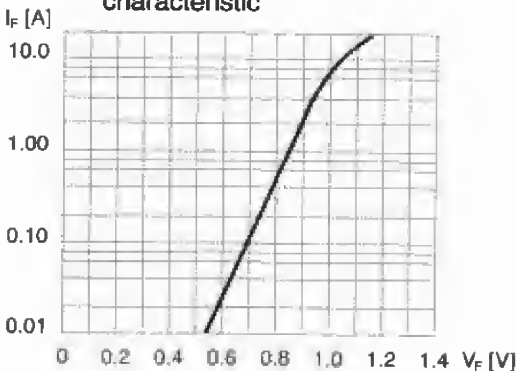
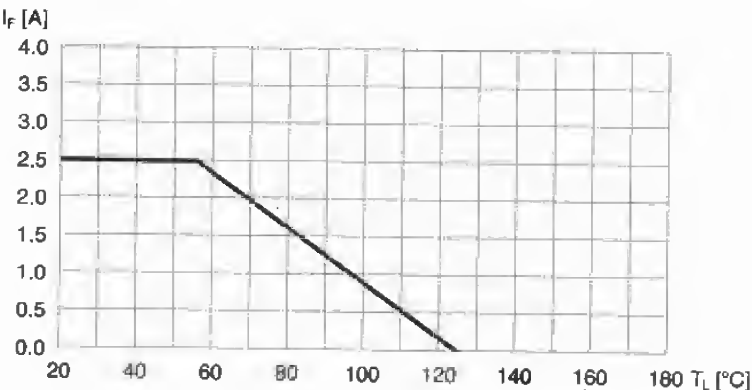


Fig. 2 – Forward derating curve





3 A Bridge Rectifier

50 to 1000 V

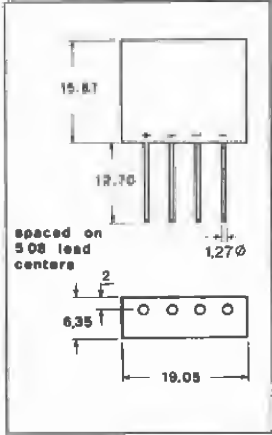
KBL Series

VOLTAGE RATINGS

Type	Maximum RMS Voltage	Maximum Recurrent Peak Reverse Voltage
KBL005	35 V	50 V
KBL02	140 V	200 V
KBL04	280 V	400 V
KBL06	420 V	600 V
KBL08	560 V	800 V
KBL10*	700 V	1000 V

* Limited Production

CASE OUTLINE



MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature and 10 mm lead length unless otherwise specified.
Single-phase, half-wave, 50 Hz, resistive or inductive load.

Maximum Average Forward Rectified Current	3 A
Peak Forward Surge Current, 10 ms Single Half Sine Wave	200 A
Maximum Forward Voltage per Element at 3 A _{DC}	1.2 V
Maximum Reverse Current at 25°C	10 µA
Maximum Reverse Current at 100°C	1 mA
I ² t Rating for fusing (t < 10 ms)	200 A ² s
Typical Thermal Resistance R _{th J-A}	15 °C/W
Operating Temperature Range	-55 to +150°C
Storage Temperature Range	-55 to +150°C

RATING AND CHARACTERISTIC CURVES

Fig. 1 — Typical forward characteristic

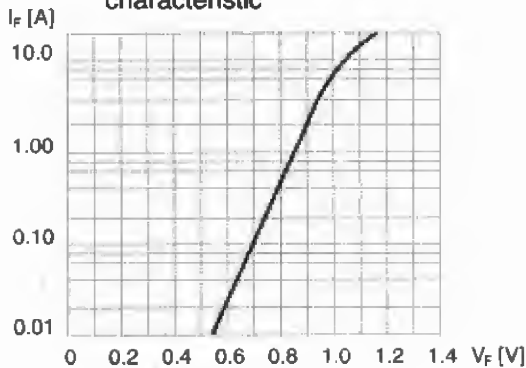
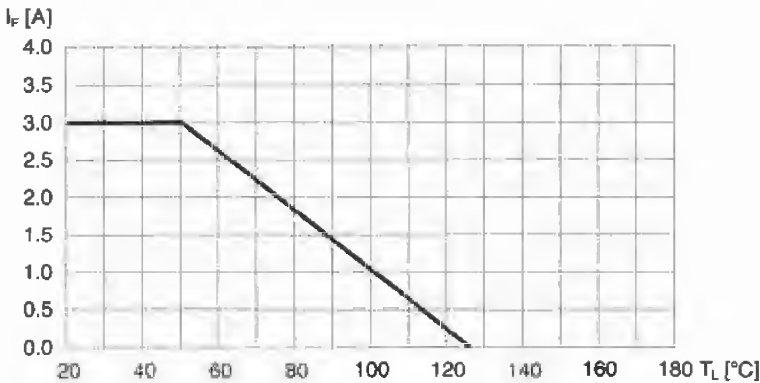


Fig. 2 — Forward derating curve





3.7 A Bridge Rectifier

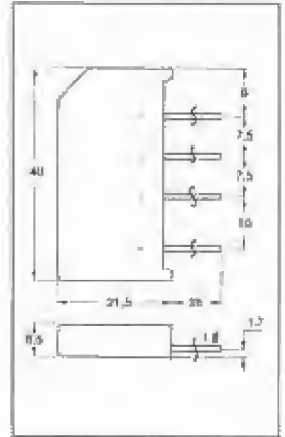
40 to 380 V_{RMS}

B 40C 3700/2200
B 80C 3700/2200
B125C 3700/2200
B250C 3700/2200
B380C 3700/2200

VOLTAGE RATINGS

Type	Maximum RMS Voltage	Maximum Recurrent Peak Reverse Voltage
B 40C 3700/2200	40 V	100 V
B 80C 3700/2200	80 V	190 V
B125C 3700/2200	125 V	300 V
B250C 3700/2200	250 V	600 V
B380C 3700/2200	380 V	900 V

CASE OUTLINE



MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature and 10 mm lead length unless otherwise specified.
Single-phase, half-wave, 50 Hz, resistive or inductive load.

Maximum Average Forward Rectified Current natural cooling, $t_A = 45^\circ\text{C}$ C-Load	2.2 A
R+L-Load	2.7 A
on chassis = 200 cm ² ; $t_A = 45^\circ\text{C}$ C-Load	3.7 A
R+L-Load	4.8 A
Maximum Repetitive Peak Forward Current	15 A
Peak Forward Surge Current, 10 ms Single Half Sine Wave	100 A
I^2t Rating for fusing ($t < 10$ ms)	50 A ² s
Maximum Forward Voltage per element	1.0 V
Maximum Reverse Current at 25°C	10 μA
Maximum Reverse Current at 150°C	6 mA
Operating Temperature Range	-55 to +150°C
Storage Temperature Range	-55 to +150°C

RATING AND CHARACTERISTIC CURVES

Fig. 1 – Typical forward characteristic

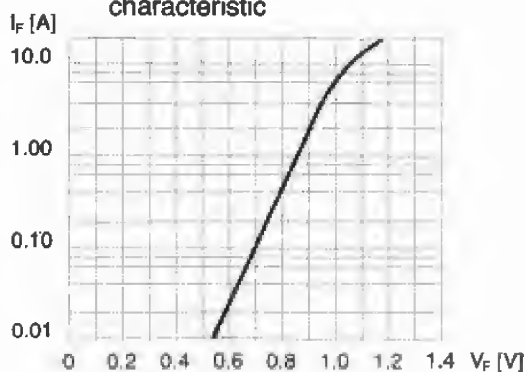
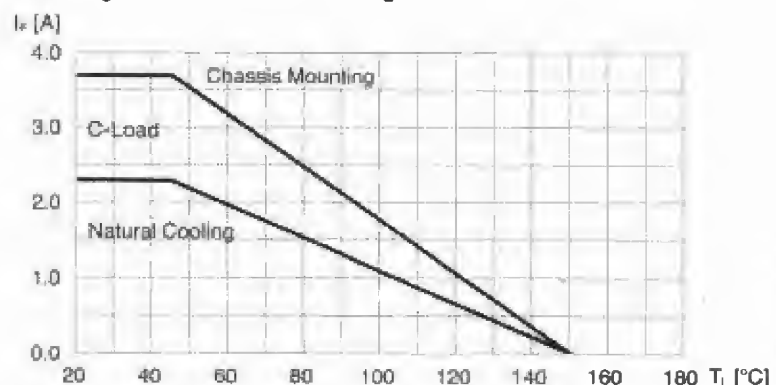


Fig. 2 – Forward derating curve





3 A Bridge Rectifier

50 to 1000 V

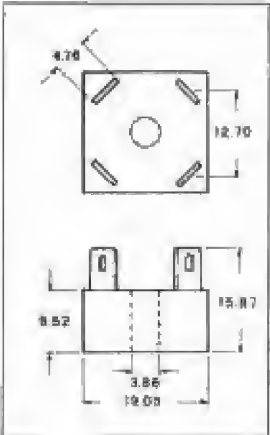
KBPC
Series

VOLTAGE RATINGS

Type	Maximum RMS Voltage	Maximum Recurrent Peak Reverse Voltage
KBPC005	35 V	50 V
KBPC02	140 V	200 V
KBPC04	280 V	400 V
KBPC06	420 V	600 V
KBPC08	560 V	800 V
KBPC10	700 V	1000 V

Also available in Avalanche and Fast Recovery Characteristics.

CASE OUTLINE



MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature and 10 mm lead length unless otherwise specified.
Single-phase, half-wave, 50 Hz, resistive or inductive load.

Maximum Average Forward Rectified Current	3.0 A
Peak Forward Surge Current, 10 ms Single Half Sine Wave	50 A
Maximum Forward Voltage per Element at 1.5 A _{DC}	1.1 V
Maximum Reverse Current at 25°C	10 µA
Maximum Reverse Current at 100°C	1 mA
I ² t Rating for fusing (t < 10 ms)	12.5 A ² s
Typical Thermal Resistance R _{th J-C}	12.5 °C/W
Operating Temperature Range	-55 to +125°C
Storage Temperature Range	-55 to +150°C

RATING AND CHARACTERISTIC CURVES



Fig. 1 – Typical forward characteristic

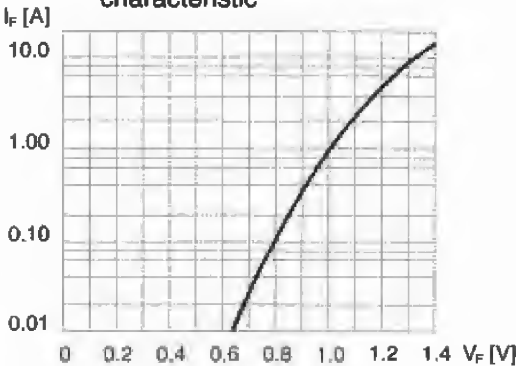
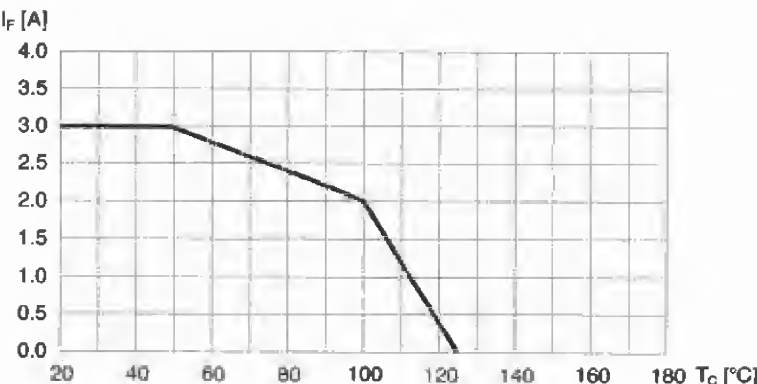


Fig. 2 – Forward derating curve





8 A Bridge Rectifier

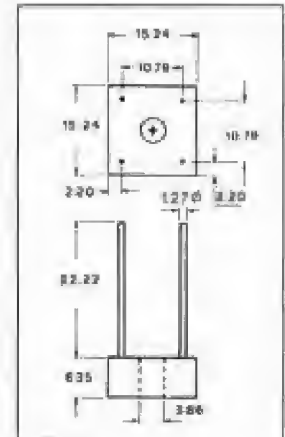
50 to 1000 V

KBPC6
Series

VOLTAGE RATINGS

Type	Maximum RMS Voltage	Maximum Recurrent Peak Reverse Voltage
KBPC6 005	35 V	50 V
KBPC6 02	140 V	200 V
KBPC6 04	280 V	400 V
KBPC6 06	420 V	600 V
KBPC6 08	560 V	800 V
KBPC6 10	700 V	1000 V

CASE OUTLINE



MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature and 10 mm lead length unless otherwise specified.
Single-phase, half-wave, 50 Hz, resistive or inductive load.

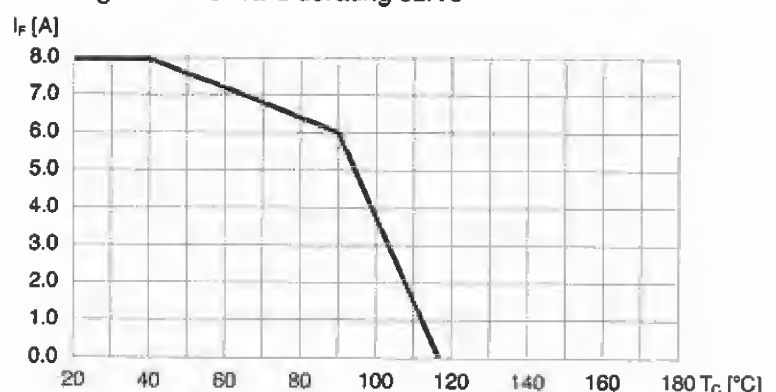
Maximum Average Forward Rectified Current	8 A
Peak Forward Surge Current, 10 ms Single Half Sine Wave	125 A
Maximum Forward Voltage per Element at 3 A _{DC}	1.2 V
Maximum Reverse Current at 25°C	10 µA
Maximum Reverse Current at 100°C	1 mA
I ² t Rating for fusing (t < 10 ms)	78 A ² s
Typical Thermal Resistance R _{th J-C}	5 °C/W
Operating Temperature Range	-55 to +125°C
Storage Temperature Range	-55 to +125°C

RATING AND CHARACTERISTIC CURVES

Fig. 1 — Typical forward characteristic



Fig. 2 — Forward derating curve





8 A Bridge Rectifier

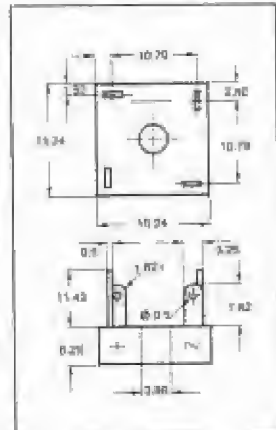
50 to 1000 V

KBPC6t
Series

VOLTAGE RATINGS

Type	Maximum RMS Voltage	Maximum Recurrent Peak Reverse Voltage
KBPC6 005t	35 V	50 V
KBPC6 02t	140 V	200 V
KBPC6 04t	280 V	400 V
KBPC6 06t	420 V	600 V
KBPC6 08t	560 V	800 V
KBPC6 10t	700 V	1000 V

CASE OUTLINE



MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature and 10 mm lead length unless otherwise specified.
Single-phase, half-wave, 50 Hz, resistive or inductive load.

Maximum Average Forward Rectified Current	8 A
Peak Forward Surge Current, 10 ms Single Half Sine Wave	125 A
Maximum Forward Voltage per Element at 3 A _{DC}	1.2 V
Maximum Reverse Current at 25°C	10 µA
Maximum Reverse Current at 100°C	1 mA
I ² t Rating for fusing (t < 10 ms)	78 A ² s
Typical Thermal Resistance R _{th J-C}	5 °C/W
Operating Temperature Range	-55 to +125°C
Storage Temperature Range	-55 to +125°C

RATING AND CHARACTERISTIC CURVES

Fig. 1 — Typical forward characteristic

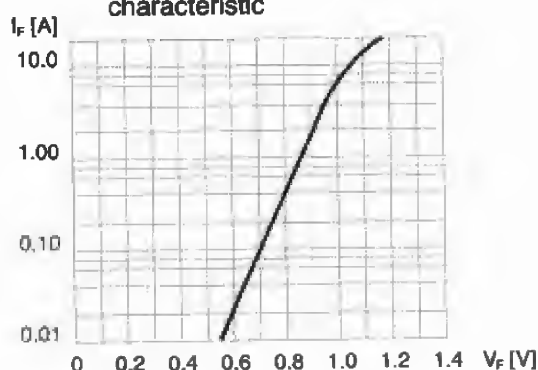
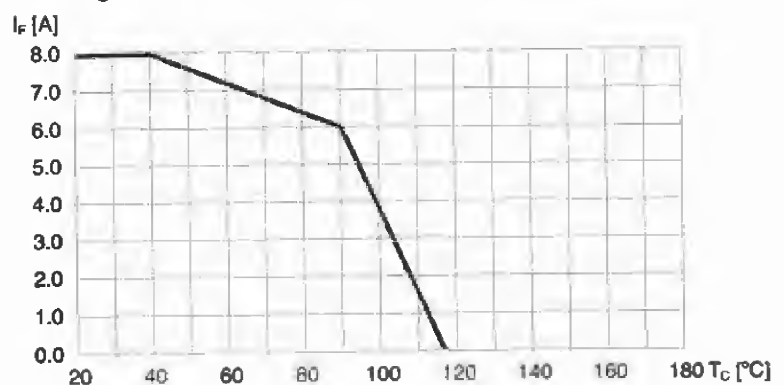


Fig. 2 — Forward derating curve





8 A Bridge Rectifier

50 to 1000 V

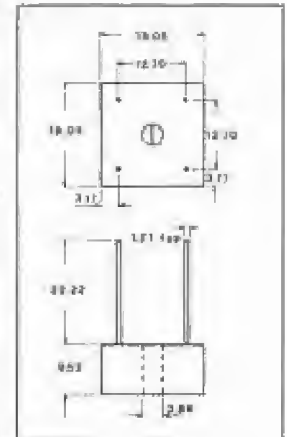
**KBPC8
Series**

VOLTAGE RATINGS

Type	Maximum RMS Voltage	Maximum Recurrent Peak Reverse Voltage
KBPC8 005	35 V	50 V
KBPC8 02	140 V	200 V
KBPC8 04	280 V	400 V
KBPC8 06	420 V	600 V
KBPC8 08	560 V	800 V
KBPC8 10	700 V	1000 V

Also available in Avalanche and Fast Recovery Characteristics.

CASE OUTLINE



MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature and 10 mm lead length unless otherwise specified.
Single-phase, half-wave, 50 Hz, resistive or inductive load.

Maximum Average Forward Rectified Current	8 A
Peak Forward Surge Current, 10 ms Single Half Sine Wave	125 A
Maximum Forward Voltage per Element at 3 A _{DC}	1.2 V
Maximum Reverse Current at 25°C	10 µA
Maximum Reverse Current at 100°C	1.0 mA
I ² t Rating for fusing (t < 10 ms)	78 A ² s
Typical Thermal Resistance R _{th J-C}	5 °C/W
Operating Temperature Range	-55 to +125°C
Storage Temperature Range	-55 to +150°C

RATING AND CHARACTERISTIC CURVES



Fig. 1 — Typical forward characteristic

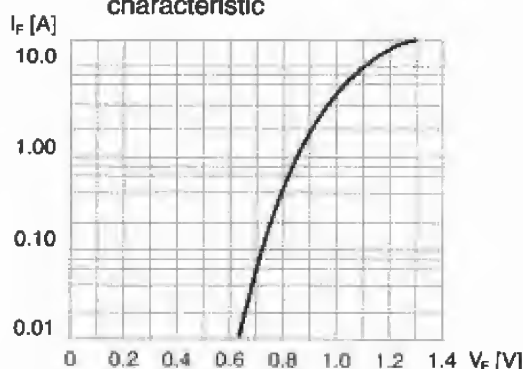
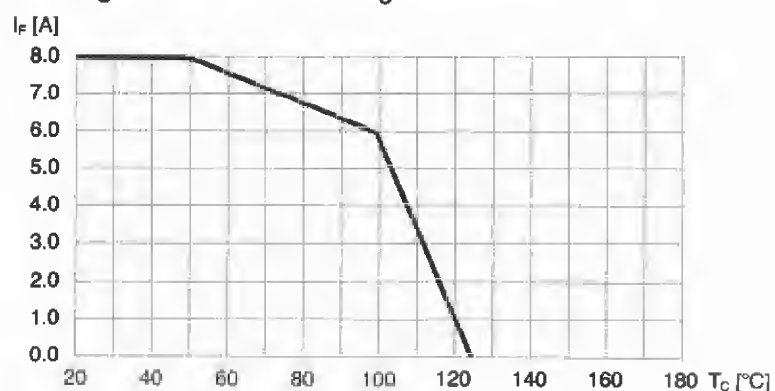


Fig. 2 — Forward derating curve





35 A Bridge Rectifier

50 to 1000 V

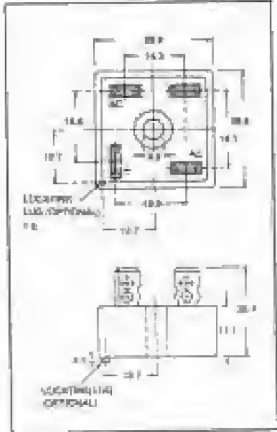
KBPC35 Series

VOLTAGE RATINGS

Type	Maximum RMS Voltage	Maximum Recurrent Peak Reverse Voltage
KBPC35 005	35 V	50 V
KBPC35 02	140 V	200 V
KBPC35 04	280 V	400 V
KBPC35 06	420 V	600 V
KBPC35 08*	560 V	800 V
KBPC35 10*	700 V	1000 V

*Limited Production

CASE OUTLINE



Suffix indication: D Insulated Case L Position Lug W Wire Leads

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature and 10 mm lead length unless otherwise specified.
Single-phase, half-wave, 50 Hz, resistive or inductive load.

Maximum Average Forward Rectified Current	35 A
Peak Forward Surge Current, 10 ms Single Half Sine Wave	400 A
Maximum Forward Voltage per Element at 17.5 A _{DC}	1.2 V
Maximum Reverse Current at 25°C	10 µA
Maximum Reverse Current at 100°C	1.0 mA
I ² t Rating for fusing (t < 10 ms)	800 A ² s
Typical Thermal Resistance R _{th J-C}	2.5 °C/W
Operating Temperature Range	-65 to +175°C
Storage Temperature Range	-65 to +175°C

RATING AND CHARACTERISTIC CURVES

Fig. 1 – Typical forward characteristic

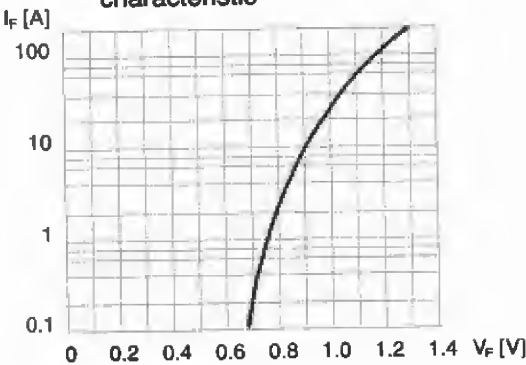
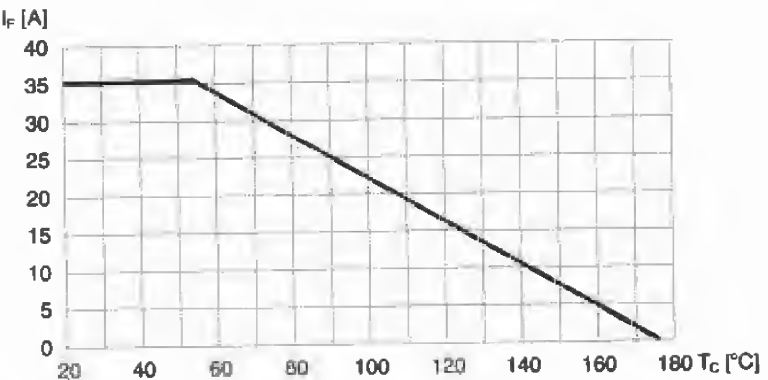


Fig. 2 – Forward derating curve





Quality Assurance

Customer Information

Introduction

Quality and Reliability Engineering of the Discrete Semiconductor Division extends its services to the areas of materials and product analysis, reliability evaluation, quality inspection and development of new test methods.

Headquartered in New York, it assumes the responsibility for the development, implementation and administration of the Quality Assurance programs for all operations of the Division, both domestic and foreign.

Additionally at our manufacturing plants, rigid and extensive in-process quality controls are utilized such that the quality and reliability of our products are consistent and repeatable. The laboratories of our facilities are equipped with the latest high-level instrumentation and staffed with skilled technicians and engineers.

Professional expertise and the most modern scientific equipment maintains our position of excellence and leadership as the foremost producer of semiconductor devices, and assures that the quality levels of our products, from inspection and test of raw materials to final approval of completed devices, meet the highest standards of the industry.

We offer . . .

- Top-flight specialists and modern facilities.
- Experienced Test Engineers and Reliability Engineers.
- A fully equipped laboratory able to perform almost any type of scientific investigation.

Services of the Materials and Device Analysis Section

- Testing, inspection and evaluation of materials and products utilizing the facilities of the electrical, mechanical, high-reliability and chemical analysis departments of our laboratories.
- Research and development of testing methods.
- Inspection of materials to ensure compliance by suppliers and contractors to specifications.
- Failure analysis to determine the cause of breakdown in materials or components.
- Qualification testing of military devices in accordance with applicable military specifications. The laboratories are qualified to perform testing to MIL-S-19500, MIL-STD-750, MIL-STD-202, and also are qualified to MIL-STD-883 tests under MIL-M-38510. Qualification approvals (QPL listing) were awarded by the United States, Canadian and West German Departments of Defense.
- A continuing program of military reliability (JAN-TX) also is in progress to assure conformance to the requirements for aerospace and the military.



TEST CONDITIONS

Operational Life

Conditions: Rated voltage, rated current, for 1000 hours at 25°C.

Solderability

Conditions: 95 % coverage within 1.2 mm of device body.

DC Blocking

Conditions: Rated voltage for 1000 hours at 100°C in inert environment.

Temperature Cycling

Conditions: -65°C to +175°C.

Storage Life

Conditions: 100°C for 1000 hours in inert environment.

Shock

Conditions: 5 blows of 1500 g's.

Lead Pull

Conditions: Axial pull to destruction.

Vibration (Constant)

Conditions: 20 g's at 60 Hz \pm 20 Hz.

Lead Fatigue

Conditions: Number of 90-degree bends with 0.5 kg weight attached to lead.

Acceleration

Conditions: 20,000 g's.

Moisture Resistance

Conditions: 85°C, 85 % Relative Humidity for 10 days.

Salt Atmosphere

Conditions: 5 % solution for 24 hours at 35°C.

Flammability

Conditions: Encapsulating compound, General Instrument's proprietary formulas, GI-4B or GI-5A is self-extinguishing, recognized and registered by Underwriters' Laboratories, U.S.

Moisture Capabilities of Diodes, Rectifiers, and Bridges

Conditions: T_a = 25°C to 85°C in Operating Mode Suitability Tested by Reverse Leakage Current at Rated Voltage

Device	Yearly Average		100 % RH 30 Days Continuous	95 % RH 30 Days Continuous	Balance Occasional 100 % RH
	\geq 95 % RH	\geq 85 % RH			
GPD	■		■		■
GPR	■		■		■
GP10		■	■		■
GP15		■	■		■
GP20	■		■		■
GP30	■		■		■
DO41		■		■	■
WO/WL Series	■		■		■
KBP Series	■			■	■
KBPC Series	■		■		■
KBL Series	■			■	■

Description of HI-REL Test Capabilities

- **Barometric Pressure:** This equipment simulates low atmospheric pressure encountered in non-pressurized environments up to 200,000 feet.
- **Humidity:** This equipment evaluates units in an accelerated manner, and monitors the effects of their resistance to high humidity and heat conditions. Typical RH of 90 to 98 % is achieved.
- **Salt (Spray) and Salt Atmosphere:** The equipment provides an accelerated laboratory corrosion test simulating the effects of seacoast atmospheres. Salt concentration and velocity per day can be maintained between 10,000 and 50,000 mgm/m²/day. Salt Atmosphere – Salt spray 5 % – 20 % salt solution.
- **Thermal Shock Temp.-Cycling:** This test determines the resistance of devices to exposure at extremely high and low temperatures. Chamber limits – 74°C to 250°C.
- **Mass Spectrometer Leak Detector (Fine Leak):** To determine the effectiveness (or the hermeticity) of the seal on devices with internal cavities which are evacuated or contain air or gas. Machine limits $1 \cdot 10^{-9}$ to $10 \cdot 10^{-6}$ atm.
- **Gross Leak:** Determine seal leak greater than $10 \cdot 10^{-6}$ ATM cc/Sec.
- **Constant Acceleration:** Determines the effects of a centrifugal force on devices up to 700,000 g under space environment (refrigerated vacuum).
- **Shock:** Subjects the devices to conditions resulting from sudden applied forces or abrupt changes in motion produced by rough handling, transportation or field operation from 10 to 4,500 g.
- **Vibration Fatigue:** Tests the effects of vibration within the frequency range of 60 Hz at 0–70 g.
- **Vibration Noise:** Measures the amount of electrical noise produced by the devices under vibration from 0–5 kHz and 0–70 g.
- **Vibration Variable Frequency:** Tests the effect of the devices to vibration in specified frequency ranges from 0–5 kHz at 0–70 g.
- **Non-Operating Life:** To determine the effects on devices at elevated temperatures. Temperature ranges up to 300°C.
- **Operating Life Test:** To operate the devices under intended condition to screen and eliminate marginal devices and eliminate mortality.
 - Steady State Operating Life.
 - Reverse Bias Operating Life.
 - Intermittent Operating Life.
- **Solderability – Lead Integrity (Lead Tension):** Determine the solderability on all devices from 0 to 400°C. Lead Tension – Designed to check the capabilities of the devices to withstand straight pulls.
- **Lead Integrity (bending stress):** Check the quality of leads, welds and seals of the devices to withstand bends under specific weights.
- **Lead Integrity (lead torque):** Check the devices, leads and seals for resistance to twisting motion. Equipment limits from .5 cmkg to 100 mkg.
- **Hi-Power Microscopic Inspection:** Examine internal and external construction of our devices up to 600 times.
- **Bond Strength:** This determines strength of lead bonding between the active area of the device and connecting package leads.

HI-Reliability, Military, JAN and JANTX Devices

Where application demand higher reliability parts than our normal commercial units, there are two categories of product screening which are available as a stock item: JAN and JANTX. When reliability classes are required for use in military applications, on other very critical areas which are not for military use but require same special processing the JAN and JANTX devices are available. Where possible it is advantageous to specify a JAN or JANTX device rather than a special screening procedure because the JAN and JANTX parts are already processed as a standard stock item and do not place an additional load on the factory as will a small speciality requirement.

Reliability of each individual JAN and JANTX lot is accepted when sample tested, versus a commercial lot where a product line is tested for reliability on a periodic basis. JAN devices are processed according to a sample basis, where JANTX devices have 100 % processing and conditioning prior to release to the customer. Both JAN and JANTX devices are lot accepted by undergoing tests including electrical, solderability, thermal shock, terminal strength, moisture resistance, shock, vibration, acceleration, salt atmosphere, surge, storage and operating life. JAN parts are inspected electrically and shipped to the customer. All JANTX devices go through an additional environmental screening consisting of:

- Stabilization Bake for a minimum of 24 hours.
- Temperature Cycling of 10 complete cycles.
- Acceleration of 20,000 G's.
- Fine Leak.
- Gross Leak.
- Initial Electrical with data.
- Operating Life Burn-In for a minimum of 96 hours.
- Post Electrical with data.
- Delta Calculations on leakage current and forward voltage drop.

These devices are being processed on a daily ongoing basis. This in turn makes for a hi-reliability 100 % screened part readily available as an off-the-shelf item. A list of available parts and their packages is seen on page 49 under Glass Passivated Rectifier.



REEL PACKAGING (Standard Specification)

COMPONENT CASE TYPE *	UNITS PER REEL	COMPONENT SPACING "A" FIG. 1		TAPE SPACING "B" FIG. 1		APPROX. REEL DIMENSION "C" FIG. 4		MAX OFF ALIGNMENT "E" FIG. 1		APPROX. GROSS WEIGHT PER REEL PACKED	
		in.	mm	in.	mm	in.	mm	in.	mm	lbs.	kg.
DO15	3500	.200	5.04	2.0	50.8	2.8	71	.047	1.2	5.06	2.3
DO27	1200	.375	9.5	2.0	50.8	2.8	71	.047	1.2	3.52	1.6
DO27A/C	1200	.375	9.5	2.0	50.8	2.8	71	.047	1.2	5.06	2.3
DO41	5000	.200	5.04	2.0	50.8	2.8	71	.047	1.2	5.76	2.6
G1	4000	.200	5.04	2.0	50.8	2.8	71	.047	1.2	5.76	2.6
G3	1500	.375	9.5	2.0	50.8	2.8	71	.047	1.2	4.8	2.2
GPD	4000	.200	5.04	2.0	50.8	2.8	71	.047	1.2	3.74	1.7

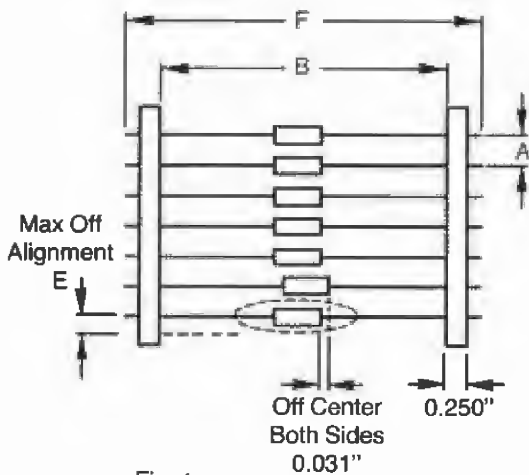


Fig. 1

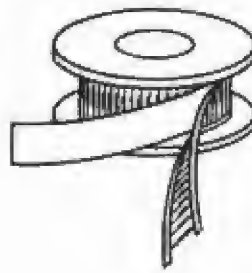


Fig. 2

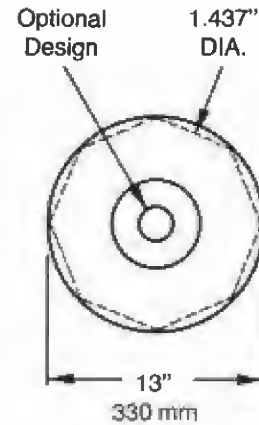


Fig. 3

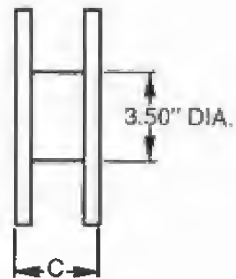


Fig. 4



REEL PACKAGING (Metric Specification)

COMPONENT CASE TYPE *	UNITS PER REEL	COMPONENT SPACING "A" FIG. 1		TAPE SPACING "B" FIG. 1		APPROX. REEL DIMENSION		MAX OFF ALIGNMENT "E" FIG. 1		APPROX. GROSS WEIGHT PER REEL PACKED	
		in.	mm	in.	mm	in.	mm	in.	mm	lbs.	kg.
DO15	3500	.197	5	2.062	52.4	2.8	71	.047	1.2	5.06	2.3
DO27	1200	.394	10	2.062	52.4	2.8	71	.047	1.2	3.52	1.6
DO27A	1200	.394	10	2.062	52.4	2.8	71	.047	1.2	5.06	2.3
DO41	5000	.197	5	2.062	52.4	2.8	71	.047	1.2	5.76	2.6
G1	4000	.197	5	2.062	52.4	2.8	71	.047	1.2	5.76	2.6
G3	1500	.394	10	2.062	52.4	2.8	71	.047	1.2	4.8	2.2
GPD	4000	.197	5	2.062	52.4	2.8	71	.047	1.2	3.74	1.7

* Rectifier type numbers versus product families (GPD, G1 etc.) please see Numerical Index page 6/7



PACKAGING SPECIFICATIONS

Bulk Packaging Diodes and Rectifiers

Device Type	Box Size		Quantity No. of Pieces	Approx. Gross Weight	
	in.	cm		lbs.	kg
RECTIFIERS					
DO41, GP10, GPD	8 x 3.5 x 1	20.3 x 8.8 x 2.54	1000	.81/.83/.52	.37/.38/.24
GP15, G1	8 x 3.5 x 1	20.3 x 8.8 x 2.54	500	0.55	0.25
DO27, P100, P300, GP20	12 x 3.2 x 2.5	30.4 x 8.1 x 6.3	1000	1.76/2.86/1.78	.80/1.3/.81
P600	12 x 3.2 x 2.5	30.4 x 8.1 x 6.3	500	2.64	1.2
DO27A/C, GP30, GP25, G3	12 x 3.2 x 2.5	30.4 x 8.1 x 6.3	1000	2.86	1.3
AR25	Plastic Bag		200	7.26	3.3
HVPR10-1	7 x 5 x 3.4	17.7 x 12.8 x 8.6	50	4.84	2.2
HVPR15-4	7.8 x 7.8 x 1.8	19.8 x 19.8 x 4.5	100	2.86	1.3
HVPR20-80	7.5 x 10 x 2.2	19 x 25.4 x 5.5	200	0.66	0.3
BRIDGES					
B...C800	10.5 x 2.75 x 2.5	26.7 x 7 x 6.3	250	1.21	0.55
B...C1000	10.5 x 2.75 x 2.5	26.7 x 7 x 6.3	250	1.21	0.55
B...C1500	10.5 x 2.75 x 2.5	26.7 x 7 x 6.3	250	1.21	0.55
W, WOM, WL, 2W	10.5 x 2.75 x 2.5	26.7 x 7 x 6.3	250	1.21	0.55
KBP	8.3 x 6.5 x 2.3	21 x 16.5 x 5.8	200	0.77	0.35
KBL	9 x 6 x 2.2	22.8 x 15.2 x 5.5	200	3.08	1.3
KBF	6 x 6 x 2	15.2 x 15.2 x 5.1	100	1.54	0.7
KBPC8	8.8 x 8.8 x 1.8	22.3 x 22.3 x 4.5	200	3.52	1.6
KBPC	8.8 x 8.8 x 1.2	21 x 22.3 x 3	200	2.86	1.3
KBPC1, KBPC6	4.8 x 7.8 x 1.8	19.8 x 19.8 x 4.5	200	1.87/.66	.85/.3
KBPC3	8 x 6.3 x 2.2	20.3 x 16 x 5.5	50	3.74	1.7
KBPC10/25/35 With Faston Term.	10 x 6.3 x 1.7	25.4 x 16 x 4.3	50	3.08	1.4
KBPC10/25/35 With Leads	10 x 6.3 x 1.7	25.4 x 16 x 4.3	40	4.07	1.85

A. Tape and Reel Packaging of Axial Lead Units

Axial lead units are packed in accordance with EIA Standard RS-296-C plus specifications given below and the diagrams given below which are referred to in the specifications.

1. Reeling

- Component leads are positioned between tapes as shown in Fig. 1.
- A minimum of 30 cm of tape is provided before the first unit and after the last unit on the reel.
- 23 kg kraft paper is wound between layers of components and extended beyond the tape sufficiently to protect the components.
- A maximum of ten components may be omitted from any 3 m length and a maximum of two consecutive components may be missing if this omission is followed by six consecutive components.

2. Tolerances

- Bending of components leads is held to the off-alignment dimension shown in Column E and indicated by E in Fig. 1.
- The C dimension of Fig. 3 is between 3 mm and 6 mm greater than the length of the component involved. See F, Fig. 1.
- The units are held between an perpendicular to a colored tape and a white tape. Polarized units are oriented in one direction with the cathode lead being held by the colored type. The spacing between leads is shown in Column A in the table and A in Fig. 1.
- Units are centered between tapes 1.2 mm but individual units may deviate from center of row ± 0.7 mm. See Fig. 1.

NOTES



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